Description of Current Conditions

W.G. Krummrich Plant

Sauget, Illinois

DRAFT

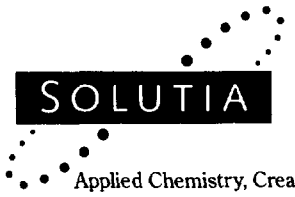
August 1, 2000

Submitted To:

US Environmental Protection Agency
Chicago, Illinois

Submitted By:

Solutia Inc.
Sauget, Illinois



Solutia Inc.
W.G. Krummrich Plant
500 Monsanto Avenue
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Tel 618-271-5835

August 1, 2000

Mr. Kenneth S. Bardo , DE-9J
United States Environmental Protection Agency, Region V
Corrective Action Section
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

RE: Souita Inc., W.G. Krummrich Plant (ILD000802702)
Administrative Order on consent
U.S. EPA Docket No.: R8H-5-00-003

Mr. Bardo

In accordance with Section VI.1a of the above referenced AOC, please find enclosed a Description of Current Conditions (DOCC) Report for Solutia's W.G. Krummrich Plant, located in Sauget Illinois. Please note that the DOCC is being provided to the U.S. EPA within 90 days of the effective date of the AOC (5/3/00).

In order to satisfy our reporting obligations pursuant to Section VI.6.b., Solutia will be providing quarterly progress reports to U.S, EPA by the 15th of the month following the quarter (beginning 9/15/00).

If you have any questions or would like to meet to discuss the DOCC, plese contact me at (618) 482-6362.

Sincerely,

Robert J. Hiller
Project Manager
Solutia Inc. - W. G. Krummrich Plant

Enclosure

cc: Mr. James K. Moore, P.E. / IEPA - Springfield
Ms. Gina Search / IEPA - Collinsville

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Section 1.0

1.0 Introduction

Solutia Inc. is submitting this Description of Current Conditions (DOCC) Report in order to fulfill Section VI.1.a of the Administrative Order on Consent (Docket Number R8H-5-00-003), signed by Solutia and the United States Environmental Protection Agency (USEPA) Region 5 on May 3, 2000 (Appendix 1). Section VI.1.a of the Order requires Solutia to:

> ***"Provide to USEPA, within 90 days of the effective date of this Order, a Description of Current Conditions (DOCC) Report which includes any recent sampling data from the Facility, which sampling was undertaken by Solutia, a summary of the historic operations, and physical setting of the facility. The DOCC Report must describe, at a minimum, conditions at all locations specified in the Draft RCRA Hazardous Waste Management Part B permit dated September 1996 (RCRA Log. No. B-69) and any other past or present locations at the facility for which Solutia Inc. has knowledge of past treatment, storage or disposal of hazardous waste or hazardous constituents or past product or waste spills."***

This Administrative Order on Consent (AOC), issued pursuant to Section 3008(h) of the Resource Conservation and Recovery Act (RCRA), also requires Solutia to complete activities necessary to identify and define the nature and extent of releases of hazardous waste and/or hazardous constituents at or from the W.G. Krummrich (WGK) facility. Specifically, Sections VI.1b, 2, 3 and 4 of the Order require the following work:

- ***"Perform an investigation to identify the nature and extent of any releases of hazardous waste and/or hazardous constituents at or from the Facility which may pose an unacceptable risk to human health and the environment and provide a report to USEPA. .... The report must also describe the nature and extent of any releases of hazardous waste and/or hazardous constituents at or from the Facility which do not pose an unacceptable risk to human health and the environment, and provide the basis for those conclusions, including an evaluation of risks."***

- ***"....[D]emonstrate by 1/1/2002 .... That migration of contaminated groundwater at or from the Facility is stabilized. That is, the migration of all groundwater known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above acceptable levels is stabilized to remain within any existing areas of contamination as defined by monitoring locations designated at the time of demonstration."***

- ***".... By 1/1/2002 ... show that any discharge of groundwater to surface water is insignificant or shown to be currently acceptable according to an appropriate interim assessment."***

- ***"....[D]emonstrate by 1/1/2004 ...that all current human exposures to contamination at or from the Facility are under control. That is, for all media known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above risk-based levels, for which there are complete pathways between contamination and human receptors, significant or unacceptable exposures do not exist."***

- ***"Determine appropriate risk screening criteria under current use scenarios and provide the basis and justification for use of these criteria"***

- ***"Determine any current unacceptable risks to human health and the environment and describe why other identified risks are acceptable."***

Section 2.0 of this DOCC covers facility background including facility operations, hazard waste management, spills and releases, environmental permits and previous site investigations. Section 3.0 describes the site setting by discussing land use, physiography, climate, hydrogeology, surface water hydrology and water use. Section 4.0 covers the nature and extent of impacted groundwater and Section 5.0 covers the nature and extent of impacted soil. Since the Order requires collection of the information needed to support preparation of a Groundwater Environmental Indicators Report and a Current Human Exposure Environmental Indicators Report, a Site Sampling Plan is included in Section 6.0 of this DOCC Report. Section 6.0 describes the site sampling plan to be implemented in order to provide the information needed to complete the Groundwater Environmental Indicators Report and the Current Human Exposure Environmental Indicators Report.

2.0 Facility Background

Solutia's W.G. Krummrich facility is located at 500 Monsanto Avenue, Section 14, T. 2 N., R. 10 W., St. Clair County, in the Village of Sauget, Illinois, across the Mississippi River from the City of St. Louis (Figure 1). While the active plant area covers approximately 131 acres, the total size of the facility is approximately 314 acres. WGK is located approximately a mile east of the Mississippi River in an industrial/commercial area.

2.1 Facility Operations History

All available historic information, along with information from 1904, 1954, 1968, 1974 and 1993 USGS topographic maps (Figures 2, 3, 4, 5 and 6), was used to establish historical operations at and near the WGK facility. In addition, aerial photographs supplied by USEPA Region 5 were reviewed to help identify historical operations (Appendix 2).

2.1.1 1900 to 1925

In 1904, WGK and the Village of Sauget did not exist and the surrounding area was largely undeveloped with widely spaced residences along the few major roads (Figure 2). Dead Creek originated north of its present location and flowed into Cahokia Chute, a small side-channel of the Mississippi River that split from the main channel between the future location of the River Terminal and the Union Electric power plant, ran to the southeast and then turned south across what is now Site O.

Chemical manufacturing at the WGK site began in 1907 when the Commercial Acids Company constructed facilities to manufacture commodity chemicals including Sulfuric, Muriatic, and Nitric Acids. In 1914, the Commercial Acids Company purchased a neighboring facility, the Sandoval Zinc Company, and added Zinc Chloride to its product line. Production of Phenol by the sulfonation process started in 1916. Monsanto purchased the Commercial Acids Company in November 1917 and called it Plant B. Through this acquisition, Monsanto gained a product line that included the heavy acids and Zinc Chloride as well as Phenol, Salt Cake and Nitric

Cake. These products remained the total line of Plant B until 1925 when it began producing Chlorine and Caustic Soda. The following year, facilities were added for the production of Chlorobenzenes, para-Nitroaniline, and catalysts for contact sulfuric acid plants.

2.1.2 1925 to 1950

In 1929, the following industries were operating in Sauget, Illinois:

- Cahokia Power Plant
- Darling & Co. Fertilizer
- Evans-Wallower Zinc (now Big River Zinc)
- Floyd Plant Food Co.
- Lewin Metals (now Cerro Copper)
- Lubrite Refining (later Mobil)
- Midwest Rubber
- Monsanto Chemical Works
- Sterling Steel Casting Co.
- T. J. Moss (now Kerr McGee)

Expanding rapidly during the 1930's, WGK added nitrated organic chemicals, Chlorophenols, Benzyl Chloride, Aroclors, hydrogenated products, Phosphorus Halides, and Phosphoric Acid to its product line. In 1932, the Village of Monsanto installed sewers and WGK's process sewers were tied into the village system. Product line expansion was halted during World War II, when emphasis was placed on maximizing production of existing products to support the war effort. During this period, 15 acres of land were sold to the United States government as a site for the construction of a Chemical Warfare Plant.

As of 1942, all of the companies listed above were still in operation except for Floyd Plant Food Co.. Federal Chemical Co. and the US Chemical Warfare Service were also using Village sewers in 1942. Two years after the end of World War II, Plant B leased the Chemical Warfare Service Plant from the US government (1947) and began producing 2,4-D and 2,4,5-T weed and brush killers. Later in the 1940's, production of the detergent ingredients Santomerse #1 and Alkylbenzene began.

2.1.3 1950 to 1975

Expansion continued in the 1950s when the plant began producing Potassium Phenyl Acetate (1950), Monochloroacetic Acid (1951) , Tricresyl Phosphate (1954), Adipic Acid (1954),

Phosphorus Pentasulfide (1955), Fatty Acid Chloride (1956), and Santolube 393 (1956). In 1951, Plant B's name was changed to William G. Krummrich to honor a plant manager.

In 1952 the Village of Sauget Waste Water Treatment Plant started operations. In addition to providing treatment for the Village of Sauget, the plant treated effluent from Amax Zinc, Cerro Copper, Edwin Cooper (now Ethyl Corp.), Midwest Rubber, Monsanto, Rogers Cartage and Sterling Steel Foundry. Between 1965 and 1978 a series of lagoons were used to dispose of waste water treatment plant clarifier sludge (Sauget Area 2 Site O). The lagoons are presently covered with two feet of clay and vegetated.

In 1954, the area around the WGK facility was heavily industrialized, more so than today (Figure 3). The Village of Monsanto (later renamed Sauget) was present, primarily an industrial area with some residential areas to the east. Remnants of Dead Creek remained at the south end of WGK, within what is now the Monochlorobenzene Department. Cahokia Chute was no longer at its 1904 location. Instead a power plant, railroad yards, the wastewater treatment plant (WWTP), and petroleum tank farms were located in this area. The US Army's Chemical Warfare Service plant (now part of Ethyl Corp) was located immediately north of WGK, and the Mobil refinery and tank farms were located immediately to the east. Cerro Copper and Moss Tie were present to the south and southeast of the plant, respectively. Development of WGK property did not extended completely to Route 3.

From 1957 to 1977, the plant disposed of wastes in a landfill adjacent to the Mississippi River now known as the Rivers Edge Landfill (Sauget Area 2 Site R). Organics, inorganics, solvents, pesticides, heavy metals and drums were disposed in this 36 acre site. A compacted clay cap was placed on the landfill in the late 1970s.

In 1960, Monsanto purchased the US government's Chemical Warfare Service Plant, and expansion of WGK continued. New units were built for the production of a germicide and an oil additive, a nitration facility and a modernized Phenol production unit. In 1963, facilities for the production of Chlorinated Cyanuric Acid compounds came on stream and a new Chlorine unit expanded output to 100 tons of Chlorine, 70 tons of Caustic Soda, and 55 tons of Potash per

day. A new ortho-Dichlorobenzene unit was completed in 1964, the same year that the first commercial biodegradable detergent intermediate was made in a modified unit.

The River Terminal, constructed circa 1960, had two tanks for storing Sulfuric Acid, and one tank each for storing Toluene, Caustic Soda, Monochlorobenzene and Fuel Oil. The only other structure at the River Terminal was a boiler house used to supply steam to keep tanks, pumps and piping from freezing. Several pipelines originated at this location, traversed property owned by others, crossed Lot F and passed under Route 3 at a point about even with WGK's West Gate. The pipelines were used to transfer Benzene, Sulfuric Acid, and Toluene from the river dock to the plant process area.

In 1964, the Village of Monsanto was renamed the Village of Sauget. Sauget and Company started operation of a landfill south of the River Terminal in 1966 and terminated operations in 1973 (Sauget Area 1 Site Q). This 90 acre facility took various wastes including municipal waste, liquid chemical wastes, septic tank pumpings, drums, organic and inorganic wastes, solvents, pesticides and paint sludges.

In 1966 a laboratory, primarily used for quality control and process research, began operation at the plant. A new Sulfuric Acid production unit was finished in 1967, replacing two smaller manufacturing units. Expansion of the para-Nitrochlorobenzene production unit was also completed in 1967, leading to a 50 percent increase in production. In 1968, WGK began the production of Calcium Benzene Sulfonate (Santolube 290). 1968 also saw the expansion of the Aroclor, Nitrochlorobenzene and ortho-Nitrophenol production units.

In 1968, the area around the plant had somewhat more industry and residential development than in 1954. Dead Creek originated just outside the southern boundary of WGK, at a point within the Cerro Copper property (Figure 4). The Union Electric power plant had a substation adjacent to its east side.. Village of Sauget WWTP settling basins (Sauget Area 2 Site O) were located just west of WGK's Lot F and the Sauget Landfill (Sauget Area 2 Site Q) was present west of the Terminal Railroad Association rail yard. Additional buildings were present north, east and west of the former Chemical Warfare Service complex along Route 3. Mobil's refinery

and tank farms were unchanged except for additional tanks. Buildings were added at Cerro Copper and Moss Tie south of the plant. Development of the WGK plant property extended all the way to Route 3.

Final shutdown of the Phenol Department, which had operated for 54 years, occurred in 1970 and the Santosite facilities were updated to increase production. In 1971, a subsidiary of Ethyl Corporation purchased the section of the plant known as the North Area (approximately 24 acres) for the production of petroleum additives. This area included the former Chemical Warfare plant. The Orthonitrophenol Department came on stream in 1972.

An IEPA permitted landfill (Sauget Area 2 Site P) was operated by Sauget and Company from 1973 to approximately 1980 on a site north of Monsanto Avenue and west of Route 3 at or near the current location of PT's Sports Bar. This 20-acre landfill accepted non-chemical wastes from Monsanto and general waste and diatomaceous earth filter cake from Edwin Cooper, Inc. (now Ethyl Corp.)

The 1974 USGS topographic map indicates that the plant and surrounding area were essentially unchanged from the 1968 map, except that the Village of Monsanto is listed as the Village of Sauget (Figure 5).

2.1.4 1975 to 2000

A new Benzyl Chloride/Santicizer-160 Plant became operational in 1976, replacing an older plant. The Aroclor and Santosite Departments ceased production and were dismantled in 1977 and 1979, respectively. In 1981, the Santicizer-160 and Butyl Benzyl Chloride ceased operations and were decontaminated and decommissioned. These departments were not dismantled since they were planned to resume operations when market conditions improved. However, the market did not improve and in 1986 the department was converted to produce a rubber chemical product called Santoflex. In the mid-1980s, Chlorine manufacturing ceased at WGK and the remaining Chlor/Alkali facilities were dismantled.

In the 1980s the River Terminal was dismantled and the pipelines leading to the plant were drained, flushed, and filled with grout.

In the early 1990s, the ortho-Nitrophenol and the Phosphorus Trichloride Departments ceased operation and were dismantled. Also in the early 1990's two businesses that operated at WGK changed ownership: 1) Oxydental Chemical purchased the ACL (swimming pool chlorine) business and 2) Flexsys, a joint venture between Akzo Noble and Monsanto, assumed ownership of the 4-Nitrodiphenylamine and Santoflex production units.

The 1993 USGS topographic map (Figure 6) indicates that Mobil's refinery and two of its three tank farms were dismantled. Both the Village of Sauget WWTP (P/Chem Plant) and the new American Bottoms Regional Treatment Plant are shown on this map.

In 1997 Monsanto spun off it's chemical business to form Solutia Inc and WGK became part of Solutia. In 1999, Flexsys halted production of 4-Nitrodiphenlyamine. The powerhouse, which generated steam and some electrical power for WGK, was also shut down in 1999. Demolition of both 4-NDPA and the powerhouse started in 2000. In 2000 Solutia and FMC formed a joint venture called Astaris combining both company's phosphorus businesses. Astaris is the current owner of the Phosphorus Pentasulfide production unit which is operated by Solutia.

2.2 Waste Management

From 1917 to the 1950s, process wastes from WGK were disposed on site and off site. On-site disposal occurred in landfills located mostly on the western side of the plant process area just east of Route 3 (Mississippi Avenue). Between 1957 and 1977, Monsanto disposed of plant wastes in the Rivers Edge Landfill (Sauget Area 2 Site R). Monsanto also operated a waste incinerator from 1971 to 1977 and stored wastes in the adjacent PCB warehouse until 1981/1982. On-site waste disposal and treatment stopped in 1977 and off-site contract facilities were then used for waste disposal. A new waste storage building (Building BBU) was built in 1981 and all drummed waste was consolidated in this building. Building BBU is currently used as a less than 90 day hazardous waste storage facility.

2.2.1 Hazardous Waste Management

WGK filed for a RCRA Part A permit on November 19, 1980 and submitted a RCRA Part B permit application on June 28, 1985. RCRA hazardous waste was managed in six on-site Hazardous Waste Management Units (HWMUs):

- Benzyl Chloride Tank
- Steamer Overhead Tank
- Old PCB Warehouse
- BBU Warehouse
- Ketone Residue Tank
- Spent Carbon Tank

Figure 7 shows the locations of these HWMUs.

IEPA issued a Draft RCRA Part B Permit on September 25, 1996. On January 10, 1997, Monsanto requested formal withdrawal of its RCRA Part B permit application because the active, RCRA-regulated TSD units at the site could be operated as less than 90 day storage facilities. A June 11, 1997 letter from the IEPA acknowledged the permit withdrawal and triggered the requirement for closure of the RCRA-regulated hazardous waste management facilities. On August 28, 1997, Solutia submitted a closure plan for the six HWMUs. IEPA issued a closure plan approval letter on February 19, 1998 and the RCRA Closure Plan was implemented. A RCRA Status Report was submitted to IEPA in October 1998. IEPA responded by requesting additional sampling to further define the nature and extent of contamination at the regulated units. Additional soil and groundwater sampling was done in 1999 and the results will be submitted to IEPA in 2000.

Currently, the BBU Warehouse and the Ketone Residue Tank are the only active, RCRA-regulated waste management units at the plant. The Benzyl Chloride Tank, Steamer Overhead Tank and Old PCB Warehouse are all out of service and dismantled. While the Spent Carbon Tank is no longer used to store hazardous waste, it still exists.

2.2.2 Solid Waste Management

In July 1992, Monsanto received the Draft RCRA Facility Assessment (RFA) Report prepared by the IEPA. The Draft RFA, and subsequent correspondence, identified 68 potential Solid Waste Management Units (SWMUs) and 20 Areas of Concerns (AOCs) at WGK. A RFA site inspection was conducted by IEPA on August 5 and 6, 1992 to obtain information concerning potential SWMUs and AOCs identified through the preliminary file review and in the Draft RFA Report. Many of the units no longer existed at the time of inspection, so little information was obtained by the Agency. However, the site inspection did identify 13 additional potential SWMUs, resulting in a total of 81 identified potential SWMUs.

Monsanto submitted SWMU Characterization Worksheets to the IEPA on September 18, 1992. On November 30, 1992, Monsanto received a copy of the Final Draft RFA from IEPA. In this document, IEPA identified 69 SWMUs and 19 AOCs at WGK. On March 16, 1993, Monsanto replied to IEPA's RFA with a RCRA Facility Assessment Review that summarized recommendations for each unit. This review was prepared to assist the IEPA with identifying potential SWMUs and in determining whether they required further action. In late 1996, IEPA issued a draft RCRA Part B Permit to WGK that included a consolidated list of 33 SWMUs that required corrective action. Of the 33 SWMUs, four were HWMUs.

When the RCRA Post-Closure Care permit was submitted by Solutia, a total of 29 overlapping SWMUs needed to be evaluated for corrective action, although several of the SWMUs are actually multi-component units (truck and rail unloading areas) or site-wide features (i.e., process sewers and Dead Creek). A section on Corrective Action was included in the RCRA Post-Closure Permit application currently undergoing review by IEPA. Descriptions of the current and former SWMUs that require corrective action evaluation are given below:

SWMU	Name	Constituents
1A	Former Chlorine Department	Phenolics, Mercury Sulfides
7	Dept. 224/233 Drum Storage Area	Unknown
9	Dept. 245 Drum Storage Area	Phosphorous Pentasulfide
19	Landfill	Unknown
20	Landfill	Unknown
24	Department 221 Toxic Dump	Nitrochlorobenzene, Nitrobiphenyl
25	New Dump	Unknown
26	Phenol Residue Dump	Phenolics

SWMU	Name	Constituents
27	Route 3 Drum Site	Nitrochlorobenzene, Nitrophenol
28	Landfill or UST	Chlorophenol
29	Old Discharge Pond	Unknown
30	Pond	Sodium Sulfate
31	Old Pond	Unknown
32	Incinerator	PCBs, Plasticizers, Solvents, Halogens
37	High Boiler Purge Tank	Chlorobenzene
44	Dept. 243 Container Storage Area	Unknown
46	Landfill	Unknown
50	Sulfate Pile	Sulfate wastes
53	South Lot Drum Site	Unknown
55	Truck/Trailer Unloading Area	Unknown
57	BBZ Warehouse	Santoflex wastes
59	Benzene Storage Tank	Benzene
61	Suspected Sanitary Landfill	Unknown
64	Tank Car Wash Area	Various
66	Sewer System	Various
68	Santoflex Wastewater/Oil Separator	MEK, MIK
70	Former Dead Creek Channel	Unknown
71	Truck/Railcar Loading/Unloading Area	Various

Figure 8 shows the approximate location or former location of the discrete Solid Waste Management Units but not the multi-component or site-wide features. Many of the SWMUs were identified using historic maps dating back to the 1940s and other information on these units is limited, incomplete or nonexistent. Therefore, some of these SWMUs may not be present as demonstrated by subsequent investigations by IEPA and Solutia.

2.3 Spills or Releases

Unintentional releases and spills at WGK are reported to state and federal agencies, as required by regulations, when volumes in excess of reportable quantities (RQs) are released. Since 1982, a spill report was prepared by plant personnel, without regard to quantity or material, any time a spill or release occurred. A description of spills and releases to ground or containment in excess of RQs from 1982 to present is given below:

1987 300 gallons of ortho-Dichlorobenzene were released from the P-still to a concrete pad. Some ODCB fell on a chatted (limestone rock) area. The material was removed from the pad and impacted chat was removed and disposed.

300 pounds of para-Nitrochlorobenzene was released from a railcar; 150 pounds went to a chatted area and the rest collected in the track pan beneath the railcar. Material was removed and the area cleaned up.

1988 2,500 pounds of Phosphorus Trichloride were released into a chatted area while loading a railcar. Spilt PCl_3 was removed and incinerated off site.

150 gallons of Hydrochloric Acid were released to a concrete dike and then flushed to the department process sewer.

1989 7,000 pounds of Benzene were released when an overhead pipeline developed a leak. Because of the low ambient temperature, the Benzene crystallized and was removed in solid form along with impacted soil.

1990 Approximately 10 gallons of Benzene were released to the ground from a leak in a valve. Impacted soil was removed and incinerated off site.

150 pounds of para-Dichlorobenzene were released from a railcar to a rail catchpan, removed from the pan and incinerated off site.

37 pounds of Benzene were released to a concrete pad and flushed to a process sewer.

2,400 pounds of mixed Dichlorobenzene were released to a concrete pad and flushed to a process sump for product recovery.

1991 200 gallons of para-Nitroaniline were released to a concrete pad that surrounded the still. Spilled material was removed and incinerated and the area was cleaned.

5,480 pounds of mixed Dichlorobenzene were released to a concrete area after a gasket failed. The material was removed, containerized and re-worked into the process.

1,000 pounds of Benzene, Monochlorobenzene and crude Monochlorobenzene, released to a concrete dike following a pipe failure, were recovered and reworked.

700 pounds of crude Dichlorobenzene were released to a contained concrete pad and recovered.

1992 1,470 pounds of Benzene were released to a dike after a tank was overfilled and recovered for reuse.

10,750 pounds of mixed Dichlorobenzene, released to a dike following a tank overflow, were recovered and reworked.

1993 3,180 gallons of Hydrochloric Acid were released to a concrete pad and chatted area. Impacted chat was removed and acid on the pad was flushed to the process sewer.

13, 500 pounds of 4-Aminodiphenylamine (4-ADPA) were released to a pad and chatted area following a pump failure. The 4-ADPA, which solidified on release, was removed from the pad and incinerated off site. Impacted chat was removed and sent to a landfill.

5,480 pounds of cooling tower chemical (Calgon CL-47) were released to the ground following a tank failure. A remediation contractor was called and all of the impacted soil was removed and sent to a landfill.

1994 25 pounds of Benzene were released to an asphalt pad and the ground following a pump failure. Absorbent cloth was used to clean the asphalt pad. Impacted chat was removed and incinerated off site.

1996 300 pounds of 4-Nitrodiphenylamine were released during a railcar unloading operation. Impacted chat was removed and landfilled off site.

1997 5,000 pounds of Methyl Isobutyl Ketone were released from a tank after a valve was struck by falling ice. The MIBK flowed onto a concrete pad, into a process sewer and on chat. The area was cleaned and the impacted chat was removed and incinerated off site.

1999 6,250 pounds of ortho-Nitrochlorobenzene were released when a protective tarp broke lose during a thunderstorm and struck a valve. The ONCB spilled onto a chatted surface and solidified. A remediation contractor was called to remove the ONCB and impacted chat which were, respectively, incinerated and landfilled off site.

2000 25 gallons of crude Benzene (Monchlorobenzene and Benzene mixture) were released to the ground when a backhoe outrigger struck a pipe nipple. Absorbent clay and pads were used to collect pooled material, impacted soil was removed and both were incinerated off site.

2.4 Environmental Permits

Compliance with, or non-applicability of, the Clean Air Act, Clean Water Act, Wild and Scenic Rivers Act, National Historic Preservation Act, Endangered Species Act, Coastal Zone Management Act, and Fish and Wildlife Coordination Act are discussed in this section. Clean Air Act and Clean Water Act Permits held by WGK are listed below. For the other five federal laws, applicability determinations made in the past and confirmed with agencies that administer these acts are included below.

2.4.1 Clean Air Act

As of November 11, 1999, WGK held the following state Clean Air Act Permits:

Department	Permit	Name	Expiration Date	Type of Permit
ONA (219)	88100006	Department	February 1, 1997	Operating
NCB (221)	88100008	Department	March 31, 1997	Operating
PNA (222)	88100007	Department	December 31, 1997	Operating
DCB (224)	88070015	Department	July 31, 1998	Operating
MCB (233)	85060055	Department	August 31, 1997	Operating
P_2S_5 (245)	87100010	Department	July 25, 1998	Operating
Santoflex (277)	84090063	Department	June 30, 1998	Operating
Santoflex (240)	83080069	Flaking Units	May 31, 1998	Operating
ACL (252)	88100005	Department	July 31, 1999	Operating
	94060032	Modification	July 21, 1995	Construction
4-NDPA (255)	90040064	Department	December 31, 1999	Operating
	92070092	Scrubber	August 28, 1997	Operating/ Construction
Carbon Treatment	90010051	Department	June 15, 1998	Operating
Cooling Towers	95010127	Utilities	March 31, 2000	Operating

A Title V Permit Application for the W. G. Krummrich Plant was received by IEPA on January 2, 1996 and deemed complete on February 8, 1996. Technical review and draft permit issuance is pending. When Title V Permit Applications are deemed complete, existing State permits do not require renewal. However, State issued air permits must be updated to reflect any modifications in operating status or reconstructions.

2.4.2 Clean Water Act

The American Bottoms Regional Wastewater Treatment Facility, which serves the City of East St. Louis, the Village of Sauget, the Village of Cahokia, the Commonfields of Cahokia Public Water District and the Metro East Sanitary District, is authorized to administer the Clean Water Act regulations that pertain to the WGK. Wastewater discharges from the facility are permitted under a Wastewater Discharge Permit (97-105) issued by the Village of Sauget Illinois.

2.4.3 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act is not applicable to WGK. A RCRA operating permit for this facility would not include the construction of any water resources project (i.e., dams, water conduits, reservoirs, powerhouse, or water transmission lines) which might be subject to this act if influencing a federally designated Wild and Scenic River. In addition, there are no rivers, or river sections, within the area of Illinois and Missouri where the plant is located (including the Mississippi River), that are Federally designated as Wild and Scenic Rivers. This conclusion is based on a February 24, 1993 phone conversation with Mr. Dave Mitchell of the National Park Service (Phone number 402-221-3481). At that time Mr. Mitchell reviewed the list of Wild and Scenic Rivers and stated that the Mississippi River is not designated in either Illinois or Missouri. In addition to contacting Mr. Mitchell, a letter with maps, showing the location of the facility and a description of facility operations, was sent to the National Park Service which is the Federal Agency that administers the Wild and Scenic Rivers Act. The letter requested that they respond if they have any information suggesting that the Solutia W.G. Krummrich plant is subject to, and/or not in compliance with the Wild and Scenic Rivers Act. No response to the letter was received.

2.4.4 National Historic Preservation Act of 1966

As of February 1993, there were no cultural resources in Sauget, Illinois that were included on the "National Register of Historic Places". After reviewing the National Register of Historic Places and criteria listed in 36 CFR section 60.4 to evaluate eligibility for inclusion on the National Register, Solutia concluded that this law is not applicable to the facility. The Illinois Historic Preservation Agency administers the National Historic Act in Illinois. A letter with maps showing the location of the facility and a description of facility operations was sent to the Illinois Historic Preservation Agency. The letter requested that they respond if they had any information suggesting that the WGK plant is subject to and/or not in compliance with the National Historic Preservation Act of 1966. The Illinois Historic Preservation Agency responded with a letter, concluding that "no significant historic properties are located within the areas currently being used for management of hazardous waste".

2.4.5 Endangered Species Act

To evaluate the applicability of this law, a review was conducted of the publication titled "Endangered and Threatened Species of Illinois: Status and Distribution" (Volume 1 - Plants, 1991, and Volume 2 Animals, 1992) published by the Illinois Endangered Species Protection Board. No animals were identified with threatened or endangered Federal Status whose known distribution includes St. Clair County, where the W.G. Krummrich facility is located. Also, no Federally "Endangered" plant species are listed in this publication for St. Clair County. The listing does include one plant with Federal "threatened" status, whose distribution includes St. Clair County. This plant is *Boltonia Decurrens* (Decurrent False Aster). Although no specific information was identified on the location of *Boltonia Decurrens* habitats within St. Clair County, Solutia believes that it does not exist in the main manufacturing area of the plant where all RCRA activities will occur (generation of wastes, in-plant movement of wastes, waste storage, and any accidental spill cleanup activities). The main manufacturing area of the plant is paved or graveled with a manicured grass lawn in the northwest part of the area. Therefore, Solutia believes that there is no potential for RCRA operations to jeopardize the continued existence of any endangered or threatened species or adversely affect a critical habitat. Consequently, the law does not appear to be applicable.

The Endangered Species Act is administered by the U.S. Fish and Wildlife Service. A letter was sent to the U.S. Fish and Wildlife Service requesting a response if they have any information suggesting that the Solutia Sauget, Illinois facility is subject to, and/or not in compliance with the Endangered Species Act. The response letter received from this agency indicated that in addition to being within the range of the threatened decurrent false aster, St. Clair County is within the wintering habitat range of the Bald Eagle, which is a federally endangered species. In their letter, the Fish and Wildlife Service concluded that "if all RCRA activities related to the subject permit application will occur inside the main manufacturing area of the plant (within existing industrial developed areas), and the Solutia facility does not operate any surface impoundments, landfills, or other environmentally exposed hazardous waste management units, we would concur with your findings that proposed activities will have no affect on federally listed endangered and threatened species".

2.4.6 Coastal Zone Management Act

The Coastal Zone Management Act may be applicable to activities affecting the coastal zone including lands thereunder and adjacent shore lands (i.e., if the site has direct access to coastal areas). The Coastal Zone Management Act is administered by the National Oceanic and Atmospheric Association (NOAA). On February 24, 1993 a representative of Solutia contacted Ms. Ellen Brody, NOAA Acting Regional Manager for the Great Lakes Region by telephone at (202) 606-4134. Ms. Brody stated that the test used by her agency to determine applicability of the act is to determine if a project will impact a coastal zone area. Ms. Brody stated that the WGK facility is not located in an area with a coastal zone and is not likely to impact a state with a coastal zone. Ms. Brody added that the nearest coastal zone that could be impacted would be Louisiana. Ms. Brody then concluded that the Coastal Zone Management Act is not applicable to the Solutia W.G. Krummrich Sauget, Illinois facility.

2.4.7 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act is administered by the U.S. Fish and Wildlife Service. A letter was sent to the U.S. Fish and Wildlife Service requesting a response if they have any information suggesting that the Solutia Sauget, Illinois facility is subject to, and/or not in compliance with the Fish and Wildlife Coordination Act. The response letter received from this agency included no indication that the W.G. Krummrich facility is subject to, or not in compliance with the Fish and Wildlife Coordination Act.

2.5 Previous Site Investigations

In November 1983, Monsanto initiated a hydrogeologic assessment of groundwater conditions at WGK as part of a company mandated program to evaluate soil and groundwater conditions at all of its sites. This assessment included the installation of 12 shallow groundwater-monitoring wells in the production area to obtain a general understanding of groundwater quality. Since that initial investigation, additional shallow and deep wells were installed at other areas of the plant as well as at Lot F (west of the production area), the Village of Sauget

property west of Lot F and Lot H which includes the Rivers Edge Landfill (Sauget Area 2 Site R) and the former River Terminal. Monitoring wells were sampled and analyzed for U.S. EPA Priority Pollutants plus additional site-specific constituents from 1984 to 1991 and for Appendix IX constituents in 1992 and 1994.

In 1986, Monsanto implemented a semi-annual monitoring program to determine groundwater quality trends. This monitoring program included 18 wells in the production area and Lot F and 11 wells at Site R. Only constituents detected in the previous two sampling rounds were included in the monitoring program and these constituents are listed below:

VOCs	SVOCs
Benzene	Chloroaniline
Chlorobenzene	Chlorophenol
Dichlorobenzene	Dichlorophenol
1,2-Dichloroethene	Napthalene
Ethylbenzene	Nitroaniline
Methylene Chloride	Nitrobenzene
Methyl Isobutyl Ketone	Nitrobiphenyl
Toluene	Nitrophenol
1,1,1-Trichloroethane	Pentachlorophenol
Vinyl Chloride	Phenol
Xylene	Trichlorobenzene
	Trichlorophenol

Pesticides, PCBs, and Metals were either not detected or were not present at concentrations high enough to warrant their inclusion in the monitoring program.

In September 1986, Geraghty & Miller compiled the historic plant-wide groundwater quality data and issued a report entitled "Plant-Wide Assessment of Ground-Water Conditions at the W.G. Krummrich Plant, Monsanto Company, Sauget, Illinois, Vol. I, II and III".

Additional wells were installed at the plant after 1986. During Fall 1987, four wells were installed at the southwest corner of Lot F and two shallow wells were installed at the western boundary of Lot F. All six of these wells were installed downgradient of the Route 3 Drum Site.

In addition, a SHU and MHU well were installed on Village of Sauget property to determine groundwater quality at a greater distance downgradient of the Route 3 Drum Site.

Geraghty & Miller issued another report in May 1993 - "Evaluation of Ground-Water Quality Conditions at W.G. Krummrich Plant, Monsanto Company, Sauget, Illinois". Both of the 1986 and 1993 Geraghty & Miller reports were submitted to IEPA.

In September 1997, Roux Associates compiled existing hydrogeologic information and water quality data from previous reports and various groundwater-sampling rounds into a report entitled "Summary of Groundwater Conditions for Solutia's William G. Krummrich Plant, Sauget, Illinois" which was submitted to IEPA on December 17, 1997 and to USEPA in October 1999. Another report, "1998 Evaluation of Groundwater Quality Conditions at W.G. Krummrich, September 1999" , which included results from the installation of additional monitoring wells on the west side of Lot F, was submitted to USEPA in October 1999.

Historical groundwater data for the site are summarized in Table 1 and sampling location maps are included in Appendix 3.

Section 3.0

3.0 Site Setting

The W.G. Krummrich plant is located in the Village of Sauget, St. Clair County, Illinois (Section 14, T. 2 N., R. 10 W) approximately a mile east of the Mississippi River (Figure 1). Plant facilities occupy approximately 131 acres of the 314 acre site which is located in a predominantly industrial area known as the American Bottoms. A U.S. Army Corps of Engineers floodwall protects the plant from flooding. Some portions of the plant property are on the river side of the floodwall, namely the Rivers Edge Landfill (Sauget Area 1 Site R) and the former River Terminal.

3.1 Land Use

Heavy industry has located on the east bank of the Mississippi River between Cahokia to Alton, Illinois for nearly a century. Industrial activity peaked in the 1960s and industries have been closing ever since. Although heavy industry has shut down throughout the American Bottoms, the area around the WGK plant is still highly industrialized. In addition to heavy industry, the area currently has warehouses, trucking companies, commercial facilities, bars, nightclubs, convenience stores and restaurants. Historically, the area was used for waste disposal. Three closed landfills (Sauget Area 2 Sites P, Q and R) and four closed sludge lagoons (Sauget Area 2 Site O) are located downgradient of the plant. Currently, a chemical reprocessor (Resource Recovery Group) and an operating hazardous waste incinerator (Trade Waste Incineration) are operating downgradient of WGK. No residential land use is located immediately adjacent to or downgradient of WGK. Residential areas of Sauget and East St. Louis are separated from WGK by other industries or undeveloped tracts of land. Limited residential areas exist to the northeast and southeast of these industrial facilities.

WGK has inactive and active industrial facilities upgradient of its location (Mobil, Sterling Steel). Former industrial facilitiles (Midwest Rubber and Darling Fertilizer), bulk storage areas (Eagle Marine and Slay Terminals), waste disposal areas (Sauget Area 2 Sites Q and R); waste treatment facilities (Trade Waste Incineration), a chemical reprocessor (Resource Recovery Group), closed sludge lagoons (Sauget Area 2 Site O) and active waste water treatment plants

(P/Chem Plant and American Bottoms Regional Treatment Facility) are located downgradient of the plant. Active industrial facilities are located on its north (Ethyl Corp., Big River Zinc) and south sides (Cerro Copper). A regulatory database search (Appendix 4) indicates that most of the local industries are listed on multiple regulatory databases. Such multiple listings suggest that environmental releases may have occurred at many of these facilities.

Descriptions of each of the major industries, formerly or currently, operating in the Village of Sauget are given below.

Big River Zinc - Big River Zinc (formerly Amax Zinc), located northwest of WGK (Figure 1) processes Zinc Sulfide concentrates (containing 60% Zinc, 20% Sulfur, 3% Lead, 0.98% Iron, and 0.6% Cadmium) into various Znc products including refined Zinc metal cast into slabs, blocks and logs; Zinc alloys; Zinc powders; Zinc Sulfate Monohydrate and Zinc Oxide. Sulfuric Acid, Copper, Nickel, Cobalt, and Cadmium were also produced at this facility. Opened in 1929, the plant shut down in 1971 but was refurbished and reopened in 1972. Waste water discharged from the plant contained:

- Zinc
- Copper
- Iron
- Cadmium
- Magnesium
- PCBs

Prior to 1972, the facility stored residue from leaching operations in on-site impoundments. These wastes likely contained inorganics and heavy metals. In 1987, IEPA conducted a "Potential Hazardous Waste Site Preliminary Assessment" for the plant. The Report noted that the storage of residues from leaching operations in lagoons could have resulted in infiltration of residue into the groundwater. Additionally, run-off from the plant and seepage from the lagoons could have resulted in surface water contamination. Soil samples taken within the plant in 1988 indicated the presence of Lead, Arsenic, Cadmium, Chromium, Zinc, and Nickel. Soil and/or groundwater information for this facility are included in Appendix 5.

Cerro Copper - Cerro Copper Products Company (Cerro Copper) abuts the southern property line of the WGK facility (Figure 1). Cerro operates an integrated copper recycling plant using

copper from many sources. In the past, Cerro received copper coils from transformers. It also scrapped PCB transformers on its property and drained the PCB oil into Dead Creek which bisected Cerro's property before it was remediated in 1990/1991. Historically, Dead Creek served as an industrial drainage ditch and received point and non-point discharges from adjacent properties. Cerro's waste water was known to contain the following constituents:

- Antimony
- Arsenic
- Beryllium
- Cadmium
- Chromium
- Copper
- Lead
- Nickel
- Silver
- Zinc
- Acetone
- Chloroform
- Methylene Chloride
- Toluene
- 1,1,1 Trichloroethane
- Trichloroethylene
- Xylene
- Naphthalene
- Phenanthrene
- Oil and Grease

Because Cerro Copper used the Creek as the point of discharge for much of its wastewater from copper recycling and manufacturing operations, creek sediments were contaminated with Cerro's waste metals. In the 1980's, USEPA and IEPA began an investigation of Dead Creek and landfills lying adjacent to it. The section of Dead Creek on Cerro's property was labeled Dead Creek Segment A. Cerro conducted a Site Investigation/Remedial Alternatives Evaluation in 1989 and, following this evaluation and other testing, removed 27,000 tons of sediments from the Creek for off-site disposal in 1990/1991.

Sediment samples from Dead Creek Segment A taken in 1986 and 1990 indicated the presence of the following constituents:

Metals	**VOCs**	**SVOCs**
Aluminum	Acetone	Acenapthene
Arsenic	Benzene	Bis(2-ethylhexyl)phthalate
Barium	2-Butanone	Chloroaniline
Cadmium	Chlorobenzene	Chrysene
Chromium	Dichloroethylene	Dichlorobenzene
Cobalt	Ethylbenzene	Dimethylphenol
Copper	Methylene Chloride	Di-n-octyl-phthalate
Iron	Methyl Ethyl Ketone	Dinitrobenzene

Metals	VOCs	SVOCs
Lead	4-Methyl-2-Pentanone	Diphenylamine
Mercury	1,1,2,2-Tetrachloroethane	Fluorene
Nickel	Tetrachloroethylene	Hexachlorobenzene
Selenium	Trichloroethylene	Hexachlorobutadiene
Silver	Xylene	2-Methylnapthalene
Tin		Napthalene
Vanadium		Nitrosodiphenylamine
Zinc		Pentachlorophenol
		Phenanthrene
		Trichlorobenzene
		Tetrachlorobenzene

PCB concentrations of up to 780 ppm were found in samples taken from Dead Creek Segment A prior to the removal of sediments.

Soil sampling performed as part of site investigations surrounding Dead Creek Segment A confirmed the presence of a number of constituents. Metals, VOCs and SVOCs were found in analytical tests performed in 1987 on soil samples taken along the rail spur on Cerro Copper's property.

Also located on Cerro's property is one of the landfills associated with Dead Creek, Sauget Area 1 Site I. It was used as a landfill for wastes from throughout the metropolitan St. Louis area from the 1930s to the late 1950s. Soil samples collected from Site I contained concentrations of VOCs such as 1,1,1-Trichloroethane (1,692 ppb), Trichloroethene (3,810 ppb), Benzene (24,130 ppb), Tetrachloroethene (5,265 ppb), Toluene (77,910 ppb), Chlorobenzene (126,900 ppb), Ethylbenzene (15,070 ppb), and Xylene (19,180 ppb). SVOCs were also detected in soil samples from this site, specfically: 1,3-Dichlorobenzene (70,140 ppb), 1,4-Dichlorobenzene (1,837,000 ppb), 1,2-Dichlorobenzene (324,000 ppb), Naphthalene (514,500 ppb), and Hexachlorobenzene (1,270,000 ppb). Soil samples also contained Arochlor 1260 (342,900 ppb), 4,4-DDD (29,694 ppb), 4,4-DDT (4,305 ppb) and Toxaphene (492,800 ppb). Beryllium (1,530 ppm), Copper (630 ppm), Lead (23,333 ppm), Zinc (6,329 ppm) and Cyanide (3,183 ppm) were also detected in soil samples.

Groundwater samples collected from beneath Site I demonstrated the presence of Vinyl Chloride (790 ppb), Trichloroethylene (279 ppb), Benzene (1,400 ppb), Tetrachloroethylene (470 ppb), Toluene (740 ppb), and Chlorobenzene (3,100 ppb). SVOCs detected in Site I groundwater include Phenol (1,800 ppb), Bis- (2-chloroethoxy)methane (2,900 ppb), 1,2,4-Trichlorobenzene (2,700 ppb), 4-Chloroaniline (9,600 ppb), and Pentachlorophenol (2,400 ppb).

Soil and/or groundwater data for the Cerro Copper facility are included in Appendix 6.

Clayton Chemical - Clayton Chemical, which is now owned by the Resource Recovery Group (RRG), is located due west of WGK (Figure 1). The property was utilized from 1930 to 1962 as a railroad repair yard. Types of waste that may have been generated and disposed of on site during this timeframe are those typical of a rail yard in those years, including off-spec or contaminated fuels, used lubricating oil, waste wash water, etc. In 1962, a crude oil topping plant began operations on-site. Products derived from the crude oil included white gas, distillate fuel oils, and residual bottoms material. Wastes from these processes were disposed on site. In the mid 1960s, solvent recovery began on-site under Clayton Chemical. The waste solvents were steam stripped resulting in still bottoms that were disposed on-site.

Bliss Waste Oil also operated on the Clayton Chemical property near the northeast corner of the site. Bliss' operations resulted in disposal of waste oil on site. Soil sampling in the area of the tanks utilized by Bliss detected PCBs and pentachlorophenol.

Darling Fertilizer - Darling was in the business of manufacturing chemical fertilizers. The process appears to have involved acidulation of phosphate rock and the subsequent blending of the rock with nitrates, lime, etc. Darling abandoned operations sometime after 1965. The waste water from the plant contained:

- Phosphorus
- Nitrogen.

Ethyl Petroleum Additives, Inc. - Ethyl Petroleum Additives, Inc. is located immediately north of WGK. In 1940, Monsanto sold land that is now owned by Ethyl to the federal government.

Construction of a plant to manufacture chemicals for use during World War II began shortly thereafter and was completed by early 1942. Monsanto then entered into a contract with the federal government (via the Chemical Warfare Service) to manufacture a product, known as CC-2, that was used to impregnate soldiers' clothes during the war to protect them from chemical warfare agents. Raw materials used to manufacture CC-2 included Chlorine, Sulfuric Acid, Analine, Urea, and Hydrochloric Acid. The manufacture of CC-2 resulted in various spills and leaks, which likely impacted soil and groundwater. At the end of the war, the impregnate processes were stopped.

In 1946, Monsanto entered into a lease with the government for operation of the plant. Pursuant to this lease, Monsanto produced 2,4-D, DDT, Santolubes, and Alkybenzene. In 1960, the government sold the plant to Monsanto. In 1971, Monsanto sold the facility to Edwin Cooper & Co., which continued to operate a petroleum additives business at the facility. In 1975, Ethyl Corporation purchased Edwin Cooper.

Ecology and Environment conducted a Screening Site Inspection of the facility in 1990. Sample results indicate increased concentrations of metals, including Aluminum, Iron, Magnesium, Potassium, and Zinc. Soil and/or groundwater data for this site are included in Appendix 7.

Midwest Rubber - Midwest Rubber began operations in 1928. The company reclaimed rubber, principally from discarded automobile tires by heating the tires in autoclaves with caustic solution or chloride solution. Waste water would have contained:

- Pine Tars
- Naphthalene
- Zinc
- Waste Oil

Mobil - Mobil Oil Refinery ("Mobil") is located east of the WGK (Figure 1). In 1917/1918, a refinery was constructed on this property for the processing of lubricating oil. In 1918, the refinery was processing about 650 barrels of lubricating oils per day. By 1923, the refinery had discontinued the production of lubricating oils and had begun the manufacturing of gasoline, kerosene and related products. Production increased to 3,500 barrels per day in 1923.

Between 1930 and 1940, operations at the plant continued to grow. Production expanded to about 12,000 barrels per day and the refinery added new equipment including four oven coke plants, a Houdry Gas Plant, and a new Gasoline Treater. Between 1942 and 1944, the refinery began necessary alterations for the production of aviation gasoline needed for World War II. By 1947, operations consisted of topping and cracking of sweet crude, with a normal capacity of 21,000 barrels per day.

During the 1950s the refinery continued to expand, reaching a production level of 50,526 barrels per day in 1959. In 1961, production increased to 55,000 barrels per day, with coke production at a rate of 8,000-13,000 tons per month. Although the refinery closed in 1970, operations at the Sauget Terminal expanded. Mobil Oil operated throughout the 1980s as a terminal for unleaded gasoline and #1 and #2 fuel oils. Product was received via two pipelines and a barge terminal and distributed via trucks loaded at the terminal. Tanks, which were filled by pipeline, ranged in size from 1,555 to 133,000 barrels. As of 1993, the Sauget Terminal operated a barge dock that transported product from Joliet to Sauget, handled 200,000,000 gallons of #1 and #2 fuel oil and gasoline for several petroleum companies and ultimately generated 100 to1000 kilograms per month of hazardous wastes.

Waste water was discharged daily into the Village of Sauget sewer system up to 1970 when the refinery was in operation. After that, waste water was discharged intermittently when only the fuels terminal was in operation. The wastewater was probably a combination of petroleum process water after primary separation, cooling water and storm water. Mobil's releases to the Village sewer ran down the "South Trunk" which was the line that ran directly to the north of Creek Segment A. A May 6, 1982 EPA memo states that Mobil was one of many industries discharging wastes into Dead Creek. Mobil's waste water contained:

- Phenols
- Ammonia
- PCBs

Based on information from Mobil retirees and documents, the following operations resulted in releases to soil and groundwater: 1) on-site kilns, 2) residual process waste disposal, 3) oily

waste piles, 4) loading racks flushed with gasoline, 5) railroad tank car loading, 6) skimmer ponds used as traps to collect liquids including overflow from alkylation units, 7) sludge placed in ponds or lagoons, and 8) tank bottoms disposal in trenches. Wastes generated at the site included sludge, tank bottoms, other oily wastes, acids from caustic treating solution and heavy metals.

In 1940/1941, when installing on-site water supply wells, Mobil had to pump oil out of the ground. In a 1952 well test, a black gummy oil was found at seven feet and at 13 feet oil was "showing."

In 1981, Woodward-Clyde conducted a site investigation of Mobil's North Tank Farm to evaluate potential impact from past operations. This investigation concluded that past spills and buried oily sludges had resulted in impact to soil and groundwater. Traces of oil and oil film were observed in some of the monitoring wells on-site. The investigation report concluded that oil could be seeping into the wells from buried sludges and that the wells could be acting as conduits for the transmission of impacted surface water and oil from buried sludges to the groundwater. The ground surface at several locations appeared to be stained with oil as a result of past leaks or spills. Oily sludge was observed caked on the surface near the oil recovery pits at the west end of the site. Petroleum was also observed seeping from beneath a railroad tie retaining wall.

In 1994, underground storage tank closure activities were completed at the site, including removal of fours USTs in the main terminal area (the crude oil refinery) and two USTs at the East Tank Farm (the bulk storage terminal). A release of hydrocarbons had occurred at each of the tanks. BTEX and polynuclear aromatics were detected in the soil. BTEX and polynuclear aromatics were detected in a groundwater sample from the East Tank Farm and polynuclear aromatics were detected in a groundwater sample from the Main Terminal Area.

The refinery closed in 1970, but operations continued at the Sauget Terminal until 1993. Over the years, operations at Mobil's facilities resulted in various leaks and spills to the ground, all of which could have impacted groundwater.

Soil and/or groundwater data for the Mobil facility are given in Appendix 8.

Rivers Edge Landfill - Industrial Salvage and Disposal, Inc. (ISD) operated the Rivers Edge Landfill (Sauget Area 2 Site R) for Monsanto from 1958 to 1977 for disposal of hazardous and non-hazardous bulk liquid and solid chemical wastes and drummed chemical wastes from WGK and, to a lesser degree, Monsanto's J.F. Queeny plant in St. Louis. Disposal began in the northern portion of the site and expanded southward. An average of 15,000 cubic yards per year of waste material were disposed in the landfill. Wastes contained phenols, aromatic nitro compounds, aromatic amines, aromatic nitro amines, chlorinated aromatic hydrocarbons, aromatic and aliphatic carboxylic acids and condensation products of these compounds. Specific constituents included Chlorobenzenes, Chlorophenols, Aniline, Nitroaniline, Nitrochlorobenzenes and Herbicides. In 1979 the landfill was covered with a clay cap that varies in thickness from 2 to 8 feet. Soil and/or groundwater data for the Rivers Edge Landfill are given in Appendix 9.

Sauget Landfill - In the late 1950s the Sauget family began the operation of the Sauget Landfill (Sauget Area 2 Site Q) which was located south of the landfill operated by Monsanto (Sauget Area 2 Site R), along the banks of the Mississippi River. It continued in operation until the 1970s. This landfill took plant trash from Monsanto, as well as waste from many other industrial facilities, demolition debris and municipal wastes. Soil and/or groundwater data from this landfill are given in Appendix 10.

Sterling Steel - Sterling Steel Foundry, Inc. is located southeast of the Krummrich plant. Operations began at the site in 1922 as Sterling Electric Steel Casting Co.. Sterling Steel used the following raw materials in its operations: Manganese, Chromium, Nickel, Molybdenum and Silicon. It disposed of casting sand, demolition debris, and scrap metal in unlined pits and surface disposal areas at least from 1973 through 1978. One pit is located at Sauget Area 1 Site J, with another located near the facility's incinerator. Initial excavations of these disposal pits occurred in the 1950s. A 1986 Ecology and Environment report noted that there was a high metal content in the wastes in the Site J area. Wastes from the facility also included spent

foundry sand, popcorn slag, and quench water scale. Cooling water from electric furnaces, compressors and air conditioning was discharged into the 24" sewer line at the north end of Dead Creek.

By 1982, the foundry conducted smelting by melting scrap steel in an induction furnace, and then pouring it into molds lined with a mixture of sand and bentonite clay. The sand and bentonite clay mixture was then disposed of on the property. In 1982, after a brief shutdown, the facility was bought by St. Louis Steel Casting.

A 1986 soil gas survey reading conducted by Ecology and Environment revealed volatile organic gases in concentrations ranging from 65 mg/l to over 1000 mg/l. Surface soil samples also indicated the presence of Nickel (377 mg/kg) and Chromium (500 mg/kg). Subsurface soil samples indicated the presence of Ethylbenzene, Xylene, 1,4-Dichlorobenzene, Dibenzofurans, Phenanthrene, and Aroclor 1260. The highest organic concentration was 110 mg/kg near the southeast corner of the disposal area. A 1993 CERCLA Site Screening Inspection included on-site surface soil and sediment samples. PCBs were found in almost all samples and Arsenic, Barium, Beryllium, Cadmium, Copper, Mercury, Nickel and Thallium were identified at levels above background and normal soil ranges. A 1996 Phase II Investigation conducted by Rust Environmental revealed Arsenic, Barium, Cadmium, Chromium and Lead in groundwater. The report concluded that these levels were associated with metal manufacturing and could have resulted from the fill material at adjacent areas. Soil and/or groundwater data for this facility are given in Appendix 11.

T.J. Moss - The T.J. Moss Tie Company, now owned by Kerr McGee Chemical Corporation ("Kerr McGee") is located southeast of WGK (Figure 1). Moss Tie began as a wood treating operation at this location in 1927. The plant operated from 1927 through 1968, treating wood products such as railroad ties and utility poles with creosote, pentachlorophenol and other preservatives. Operations at the plant under T.J. Moss and its successor Kerr-McGee, were essentially identical. The plant used creosote and "...5% Pentachlorophenol ("penta") in #2-4 diesel." Creosote solutions were utilized over the entire operating history of the plant. Penta was only used from the early 1950s until the plant's closing.

Various inspections during the 1980s and 1990s revealed areas of impacted soil throughout the facility. For example, a 1986 SRAPL inspection revealed that the north impoundment sludge and soil samples contained moderate to high levels of PAHs, while the south impoundment sludge sample contained 40.4 mg/kg of pentachlorophenol and moderate levels of PAHs. A 1988 to 1990 Remedial Investigation indicated that soil and groundwater were impacted primarily in the pond, process, and drip track areas along the southwestern and eastern half of the site. This investigation detected the following constituents: Benzene, Toluene, Ethylbenzene, Xylene, Phenol, Pentachlorophenol, Cresols and Naphthalene and other PAHs. Free product was encountered in four shallow monitoring wells adjacent to the ponds, process and drip track areas and in the deep monitoring wells adjacent to the north pond and process area.

A July 1993 groundwater quality monitoring event also noted free product mixed with water within the Cahokia Alluvium in various monitoring wells near the ponds, process, and drip track areas. For the Lower Henry Formation, free product was observed above the top of bedrock in one monitoring well in the north pond area. Creosote saturated soils were found beneath the north pond sludge and process area and drip track pad. In 1991, the volume of impacted soil was estimated to be 788,190 cubic yards containing 2,584,030 pounds of PAHs.

Soil and/or groundwater data for this facility are included in Appendix 12.

Union Electric - From 1923 until 1979, Union Electric operated a large electric generating station on the east bank of the Mississippi River directly west of the WGK plant (Figure 1). A large electrical substation, operated by Ameren/UE, is located to the east of the generating station. The power plant used coal for fueling its boilers until it switched to oil in the 1960s. Ash from the plant was disposed on property south of the plant. The plant also contained PCB-filled transformers both in the plant building and in the yard. Currently the facility is operated as a barge and rail loading and unloading facility. Products handled include coal and various chemicals.

Village of Sauget Waste Water Treatment Plant - Sauget Area 2 Site O is the location of the old Sauget Waste Water Treatment Plant (P-Chem Plant) sludge lagoons. The 20-acre site consists of four covered sludge dewatering lagoons associated with the old WWTP. Documents indicate that the WWTP began operations in 1952. The sludge lagoons at Site O were opened in 1965, and were placed in operation in 1966/1967. A 1988 report on the Sauget area states that "[a]pproximately ten million gallons per day (gpd) of waste water was treated at this facility, of which over 95 percent of the influent came from industrial sources."

A Notification of Hazardous Waste form was submitted to EPA by the Village in 1981 which explained that the lagoons were used for disposal of clarifier sludges from 1965 to approximately 1978. The sludge lagoons were closed in 1980 by stabilizing with lime and covering with two feet of clay. In 1982, IEPA sampled filter cake sludge from the WWTP. The sample results showed that several organics, including Chlorobenzene, Xylene and Aliphatic Hydrocarbons, were present in sludges. Additional soil and groundwater sampling was conducted by E & E at Site O in 1986/1987. The results of the sampling were documented in the May 1988 Expanded Site Investigation Report. The soil sampling indicated that much of the sludge material was probably removed prior to capping but organics were present in the residual materials. Soil and/or groundwater data for this facility are provided in Appendix 13.

Current Industrial Operations - Industrial facilities currently operating in the vicinity of WGK are listed below:

Big River Zinc	Zinc Smelter
Cahokia Marine Services	Bulk Storage
Cerro Copper	Copper Smelter
Clayton Chemical	Reprocessor
Ethyl Corporation	Petroleum Additives
Mobil Oil Company	Bulk Storage
Phillips Petroleum	Bulk Storage
Resource Recovery Group	Waste Recyling
Slay Terminals	Coal Storage
Sterling Steel Castings	Foundry
Trade Waste Incineration	Hazardous Waste Treatment
Union Electric	Electricity Distribution

3.2 Physiography

WKG is located in the floodplain of the Mississippi River in an area known as American Bottoms. Topographically, the area consists, primarily, of flat bottom land although many local irregularities occur locally. Generally, land surface in the American Bottoms area slopes from north to south and from east to west toward the Mississippi River. Land surface elevation ranges from 400 to 410 ft above mean sea level with little topographic relief.

A small portion of the plant property, mostly in Lot F, is within of the 500-year flood plain. All of the plant proper is located outside of the 100-year floodplain. Several isolated areas of shallow ponding will occur during 100 year storms according to FEMA floodplain maps. Two of these areas are on the east side of the facility in Lot A. The third area is located in the central west side of the facility near Route 3. Experience indicates that such ponding is not likely to occur because most of the area drained by storm sewers. None of these areas flooded during the 1993 Mississippi River flood, the largest recorded flood in St. Louis' history. RCRA-regulated areas at the plant are located outside the 100-year river floodplain and outside of the isolated areas of shallow ponding.

3.3 Climate

Climate at the site is continental with hot humid summers and mild winters. Periods of extreme cold are short. Average annual rainfall from 1903 to 1983 was 35.4 inches and from 1963 to 1988 it was 39.5 inches. Average annual temperature is 56°F with the highest average monthly temperature in July (79°F) and the lowest average temperature in January (32°F).

3.4 Groundwater

American Bottoms, the floodplain area on the east side of the Mississippi River, consists of unconsolidated valley fill deposits which are composed of Recent alluvium (Cahokia Alluvium) unconformably overlying glacial material of the Henry Formation. These unconsolidated deposits are underlain by Pennsylvanian and Mississippian age limestone and dolomite with lesser amounts of sandstone and shale.

Cahokia Alluvium (Recent deposits) consists of unconsolidated, poorly sorted, fine-grained materials with some local sand and clay lenses. Shallow Cahokia Alluvium deposits are fine-grained silty sand becoming coarser with depth. These deposits are about 95 feet thick at the Mississippi River thinning away to about 40 feet thick at the plant site.

The underlying Henry Formation consists of approximately 40 feet of coarse-grained glacial outwash deposits composed of medium to coarse-grained sands becoming coarser with depth. In some areas, till and/or boulder zones are found 10 to 15 feet above the base of this unit.

Site-specific geologic data show that the unconsolidated deposits range from 140 feet thick near the river to about 110 feet in the eastern part of the Solutia property. At most site locations, the contact between Cahokia Alluvium and the Henry Formation can not be distinguished. However, three distinct hydrogeologic units can be identified: 1) a Shallow Hydrogeologic Unit (SHU), 2) a Middle Hydrogeologic Unit (MHU) and 3) a Deep Hydrogeologic Unit (DHU). The 30 ft. thick Shallow Hydrogeologic Unit includes the Cahokia Alluvium (recent deposits) and the uppermost portion of the Henry Formation. This unit is primarily an unconsolidated, fine-grained silty sand with low to moderate permeability. The 40 ft. thick Middle Hydrogeologic Unit is formed by the upper to middle, medium to coarse sand portions of the Henry Formation. It contains a higher permeability sand than found in the overlying shallow Hydrogeologic Unit and these sands become coarser with depth. At the bottom of the aquifer is the 40 ft. thick Deep Hydrogeologic Unit which includes the high permeability, coarse-grained deposits of the lower Henry Formation. The zone is estimated to be about 40 feet thick.

The area is very flat and surface drainage is predominantly by infiltration rather than surface runoff. Surface elevations at the site slope to the west towards the river. Depth to water beneath the plant varies based on seasonal fluctuations, location on the plant, and the flood stage of the Mississippi River. In general, depth to water varies from less than 10 feet to about 20 feet deep. Groundwater flow direction is from east to west with groundwater discharging to the Mississippi River.

3.5 Surface Water

One major surface water feature, the Mississippi River, is found in the area of the plant. Since the former River Terminal is dismantled, Lot F is the portion of the plant property closest to the river but this area is undeveloped. Process and storage areas at WGK are more than a mile from the river. Land surface elevation drops approximately seven feet across the plant proper with a slight downhill slope from east to west. Predominant surface drainage patterns are not present in the manufacturing area because of a low topographic gradient with little relief.

Drainage and runoff control structures at the plant include diking around tank farms areas and curbing or concrete trenching around process areas. Storm water runoff is drained by a combined storm and sanitary sewer system which ties into the Village of Sauget sewer mains and is treated at the American Bottoms Regional Treatment Facility. Figure 9 depicts the WGK sewer system which is a combined gravity flow system designed to transport sanitary, storm, and process waste water into the major Village of Sauget trunk sewers. Plant sewers (sanitary, storm, process) generally flow toward the southwestern edge of the plant. In general, sewers in the plant are constructed of vitrified clay tile encased in reinforced concrete. Some of the sewers are Insituform® lined. Manholes, constructed of concrete lined with acid-resistant brick, are located at principal junctions to facilitate inspection, cleaning and repair.

3.6 Water Use

Groundwater is not used as a drinking water source in the Village of Sauget. In fact, groundwater use is controlled by village ordinance (Attachments 1 and 2). No public water supply wells are located within one mile of the plant and there are no known industrial or commercial water supply wells in the vicinity of WGK. The nearest public supply well listed in public records is located at the former Falcon Drive-In Theater in East St. Louis, greater than two miles to the north. No residential wells were identified in the vicinity of the plant. Potable water is supplied to area industry and residents by a public water supply system that obtains its water from surface water intake in the Mississippi River upstream of the plant.

4.0 Nature and Extent of Impacted Groundwater

During January and May 2000, groundwater samples were collected from selected existing on-site and off-site wells to define the current horizontal and vertical extent of VOCs and SVOCs in the SHU, MHU and DHU. Geoprobe® samples were collected in January 2000 to supplement this data set. In addition to these samples, groundwater samples collected at six RCRA HWMUs during January 2000 at the request of IEPA were incorporated into the evaluation of the nature and extent of impacted groundwater along with on-site and off-site Geoprobe® samples collected by IEPA in May 1999.

129 groundwater samples were collected during these three investigations and these data are summarized in Tables 2 and 3 and included in Appendix 14. A total of 23 constituents were detected in groundwater at concentrations higher than the IEPA Tiered Approach to Cleanup Objectives (TACO) Tier 1 Industrial Criteria. These constituents are listed, in order of highest concentration to lowest concentration, below.

Constituent	HWMU Sampling	Site-Wide Sampling	IEPA Sampling
Dichlorobenzene	•	•	•
Benzene	•	•	•
Chlorobenzene	•	•	•
Xylene	•		
Chloroaniline	•	•	•
Toluene	•		
Ethylbenzene	•		
Nitrophenol	•		•
Pentachlorophenol	•	•	•
Dichlorophenol	•	•	•
Chlorophenol	•	•	•
Trichlorobenzene	•	•	•
Trichlorophenol	•	•	•
Phenol	•	•	•
Nitroaniline	•		•
Methylene Chloride			•
Methyl Isobutyl Ketone		•	
1,1,1-Trichloroethane	•		

Constituent	HWMU Sampling	Site-Wide Sampling	IEPA Sampling
Napthalene		•	
1,2-Dichloroethene	•		
Vinyl Chloride	•		
Nitrobenzene	•		•
Nitrobiphenyl	•		

Dichlorobenzene, Benzene, Chlorobenzene, Chloroaniline, Pentachlorophenol, Dichlorophenol, Chorophenol, Trichlorobenzene, Trichlorophenol and Phenol were detected during each of the three separate sampling events indicating that these ten constituents are widespread across the site. Nine of the these ten constituents can be placed into two groups of related compounds:

Benzene Compounds	Phenol Compounds
Benzene	Phenol
Chlorobenzene	Chlorophenol
Dichlorobenzene	Dichlorophenol
Trichlorobenzene	Trichlorophenol
	Pentachlorophenol

These two groups of constituents, plus Ethylbenzene, Toluene, Xylene, Aniline, Chloroaniline, Nitrobenzene and Nitrochlorobenzene, are good indicators of past groundwater releases at WGK because they were used, manufactured and/or stored on-site and they are currently widespread across the site. For these reasons, groundwater samples, collected as described Section 6.3 in order to prepare the Groundwater EIR, will be analyzed for VOCs and SVOCs using Methods 8260B and 8270C, respectively. Historical groundwater data (Table 1) indicates these constituents have the following maximum, 95 percent confidence interval, arithmetic mean and geometric mean concentrations:

VOCS, mg/l	Maximum	95% CI	Arithmetic Mean	Geometric Mean
Benzene	700	15.4	10.6	< 0.1
Chlorobenzene	341	9.8	7.4	0.2
Ethylbenzene	25	2.1	1.1	< 0.1
Toluene	3.6	1.7	0.9	< 0.1
Xylene	35.8	0.8	0.5	< 0.1

SVOCS, mg/l	Maximum	95% CI	Arithmetic Mean	Geometric Mean
Aniline	685	50.7	34.6	0.3
Chloroaniline	105	14.3	10.5	0.2
Dichlorobenzene	9.8	0.6	0.5	< 0.1
Trichlorobenzene	2.2	< 0.1	< 0.1	< 0.1
Nitrobenzene	12.9	0.2	0.2	< 0.1
Nitrochlorobenzene	461	27.8	12.3	< 0.1
Phenol	586	11.8	7.6	< 0.1
Chlorophenol	116	1.3	0.8	< 0.1
Dichlorophenol	182	2.2	1.3	< 0.1
Trichlorophenol	25.9	0.5	0.4	< 0.1
Pentachlorophenol	1.3	< 0.1	< 0.1	< 0.1

To delineate the current areal and vertical extent of VOCs and SVOCs at the site, Total VOC and Total SVOC isoconcentration maps were prepared for the SHU, MHU and DHU (Figures 10, 11, 12, 13, 14 and 15). Figures 10, 11 and 12 show the aerial distribution of Total VOCs in the Shallow, Middle and Deep Hydrogeologic Units, respectively. Figures 13, 14 and 15 show the aerial distribution of Total SVOCs in the Shallow, Middle and Deep Hydrogeologic Units, respectively.

Figure 10 indicates VOCs are present in the SHU from the plant process area to the Mississippi River with a maximum concentration of 1,600 ppm in the process area and a maximum concentration of 74.6 ppm at the river. Within the process area there are four Total VOC concentration highs: 1) the current process area at the east side the plant where Monochlorobenzene is currently manufactured and Dichlorobenzene and Nitrochorobenzene were manufactured in the past, 2) a small area in the north central portion of the plant, 3) the southwestern corner of the plant process area where Monochlorobenzene is stored and Benzene was stored and 4) Lot F where the Benzene pipeline from the former River Terminal enters the plant process area. Maximum detected concentrations in these three areas are, respectively, 350 ppm: 130 ppm; 1,600 ppm and 980 ppm. At the former River Terminal, a Total VOC concentration high is located at northern half of the Rivers Edge Landfill area. The

northern and southern boundaries of the plume are not well defined in the Shallow Hydrogeologic Unit.

Figure 11 shows the extent of Total VOCs in the MHU. The Total VOC plume extends from the process area to the Mississippi River with a maximum concentration of 75 ppm in the former and a maximum concentration of 47.2 ppm near the latter. Instead of four distinct concentration highs as with Total VOCs in the SHU (Figure 10), one large concentration high occurs beneath the central portion of the plant process area running from the eastern boundary of the plant to Route 3 (Mississippi Avenue). As this concentration high approaches Route 3 it bifurcates into two forks; one fork heading west across Lot F and extending to the boundary of Lot F and a second fork heading southwest and extending part of the way across Lot F. On Lot F there are three concentrations highs: 1) one on the north end of Lot F with a maximum concentration of 680 ppm, 2) one in the east central portion of Lot F with a maximum concentration of 470 ppm and 3) one in the southern portion of Lot F with a maximum concentration of 51.8 ppm. The former two concentration highs are probably due to migration from the former River Terminal pipeline corridor and the latter concentration high is probably due to migration from the former Benzene storage tank. At the former River Terminal, the Total VOC concentration high occupies the northern two thirds of the Rivers Edge Landfill area. The northern and southern boundaries of the plume are not well defined in the Middle Hydrogeologic Unit.

Figure 12 shows Total VOC concentrations in the Deep Hydrogeologic Unit. VOCs are present in the DHU from the eastern most portion of the process area to the Mississippi River. Concentrations in the process area range from 0.051 to 2.96 ppm. At Lot F, concentrations range from 0.380 to 9.5 ppm and at the Mississippi River concentrations range from 0.305 to 1.95 ppm. There are three concentration highs: 1) one at northern boundary of the current manufacturing area, 2) another along the western boundary of Lot F and 3) a third at the former River Terminal. The northern and southern boundaries of the plume are not defined.

Figure 13 maps the aerial distribution of Total SVOCs in the Shallow Hydrogeologic Unit. SVOCs are found in the process area with a total maximum concentration of 40,000 ppm and extend to the Mississippi River where the maximum total concentration is 6,760 ppm. There

are three concentration highs in the plant process area: 1) 35.6 ppm at the extreme eastern end of the process area, 2) 40,000 ppm at the southern end of the current manufacturing area and 3) 14.2 ppm at the location of the former railcar washing and repair facility. The Total SVOC concentration high at the eastern boundary of the process area, coincident with a Total VOC concentration of 2.1 ppm, may be the result of on-site migration of constituents from the former Mobil refinery upgradient of the site. In the current manufacturing area, the Total SVOC and Total VOC highs are coincident although the Total SVOC high is slightly smaller. At the southwestern corner of the plant process area, the Total SVOC high is located to the east of the Total VOC high. Not only was this area a rail car washing and repair facility, but historical records indicate that on-site landfills were also located in this area. At the former River Terminal, the Total SVOC concentration high covers a larger area than the Total VOC high, occupying most of the area of the Rivers Edge Landfill and the area between it and the Mississippi River. Northern and southern plume boundaries are not defined.

Figure 14 shows that SVOCs in the Middle Hydrogeologic Unit extend from the plant process area to the Mississippi River. Concentrations in the process area range from 0.04 to 200 ppm and concentrations at the river range from 327.5 to 1,529 ppm. One concentration high occurs in the plant at the location of current manufacturing operations at approximately the same location as the Total SVOC concentration high in the SHU. One difference between these two concentration highs is that the high in the SHU is oriented north/south while the high in the MHU is oriented northwest/southeast. This change in orientation may be due to downgradient migration of Total SVOCs in the MHU or it may be due to past manufacturing operations. The areal extent of the Total SVOC concentration high in the plant process area is much smaller than the Total VOC concentration high (Figure 11). Total SVOCs, at concentrations greater than 10 ppm, extend only 500 to 600 feet downgradient while Total VOCs from the process area extend at least 1200 feet downgradient. A Total SVOC high occupies the entire area of the former River Terminal and the Rivers Edge Landfill. Northern and southern plume boundaries are not defined.

Figure 15 represents the distribution of Total SVOCs in the Deep Hydrogeologic Unit. Concentrations in the plant process area range from 0.028 to 0.469 ppm. Total SVOC

concentrations at the western boundary of Lot F range from 0.036 to 2.8 ppm. At the Mississippi River, concentrations range from 6.9 to 34.8 ppm. There are four concentration highs: 1) the north central portion of the plant process area, 2) southern third of Lot F, 3) west of the Village of Sauget WWTP and 4) west of the central portion of the Rivers Edge Landfill. Northern and southern plume boundaries are not defined.

Figure 16 presents overlays of the aerial extent of manufacturing operations in 1926, 1942, 1961 and 2000 and the current extent of the VOC and SVOC plumes as defined by the 10,000 ppb isoconcentration line. This figure was prepared to assess the impact of historical plant operations on groundwater quality. As can be seen on Figure 16, the 10,000 ppb Total VOC isocon covers the area occupied by manufacturing units in 1961, the time when such facilities were at their maximum areal extent. Two downgradient extensions of the 10,000 ppb Total VOC isocon protrude into Lot F from the western boundary manufacturing area. The northern extension is located in the area of the former River Terminal pipeline corridor and the southern extension is located downgradient of a former Benzene bulk storage tank. Total SVOCs, as defined by the 10,000 ppb isocon, are confined to the area of current manufacturing operations with an extension to the northwest where manufacturing operations were located in 1942.

Section 5.0

5.0 Nature and Extent of Impacted Soil

A total of 104 soil samples were collected in 1998 and 2000, as part of investigation of the six HWMUS discussed in Section 2.5, and analyzed for VOCs, SVOCs, PCBs, Dioxins/Furans and Mercury. Selection of these samples was based on a combination of factors including field instrument readings, sample appearance and character, depth and degree of water saturation. Consistent with the approved work plan, screening results and sample appearance were the primary selection criteria. Soil samples were not collected from zones that appeared to be saturated with groundwater. Constituents detected at concentrations higher than the TACO Tier 1 Industrial Criteria include:

VOCs	SVOCs
Benzene	Chloroaniline
Chlorobenzene	Dichlorobenzene
Chlorotoluene	Trichlorobenzene
Ethylbenzene	Pentachlorophenol
Xylene	

Summary statistics for these constituents are given below:

VOCS, mg/kg	Maximum	95% CI	Arithmetic Mean	Geometric Mean
Benzene	1,200	34.3	60.1	0.7
Chlorobenzene	30,000	670.0	749.2	1.7
Chlorotoluene	12	41.1	27.4	0.2
Ethylbenzene	3,300	57.8	43.0	0.4
Xylene	38,000	1,353.9	698.0	0.2
SVOCs, mg/kg				
Chloroaniline	16	16.5	13.4	1.2
Dichlorobenzene	5,000	102.1	58.1	1.9
Trichlorobenzene	7,200	93.6	92.8	0.5
Pentachlorophenol	1,900	59.4	65.6	4.5

PCBs and Dioxin/Furans were also detected at concentrations higher than the TACO Tier 1 Industrial Criteria.

A total of 15 soil samples were collected at locations throughout the plant during the IEPA investigation at WGK in May of 1999. IEPA analyzed these samples for VOCs, SVOCs, Pesticides, PCBs, Metals and Cyanide. VOCs and SVOCs detected at concentrations higher than the TACO Tier 1 Industrial Criteria are listed below:

VOCs	SVOCs
Benzene	Chloroaniline
tert-Butylbenzene	Dichlorobenzene
Chlorobenzene	Dichlorophenol
Chlorotoluene	Nitrobenzene
Toluene	Trichlorobenzene
	Trichlorophenol
	Pentachlorophenol

Summary statistics for these constituents are given below:

VOCS, mg/kg	Maximum	95% CI	Arithmetic Mean	Geometric Mean
Benzene	2,000	261	148.1	< 0.1
tert-Butylbenzene	64	8.4	4.4	< 0.1
Chlorobenzene	28	3.6	2.5	< 0.1
Chlorotoluene	30	4.6	3.4	< 0.1
Toluene	16	2.1	1.2	< 0.1
SVOCs, mg/kg				
Chloroaniline	84	10.9	6.0	< 0.1
Dichlorobenzene	850	110.9	58.5	< 0.1
Dichlorophenol	1.6	0.2	0.1	< 0.1
Nitrobenzene	0.3	< 0.1	< 0.1	< 0.1
Trichlorobenzene	53	6.9	3.9	< 0.1
Trichlorophenol	16	2.1	1.2	< 0.1
Pentachlorophenol	46	6.0	4.1	< 0.1

Site soil data and IEPA soil data are summarized in Tables 4 and 5, respectively, and included in Appendix 15. These soil data do not provide enough information to complete a Human Health Risk Assessment and the Current Human Exposure Environmental Indicators Report for

two reasons. First, a large number of samples (104) are available for only a few geographically limited areas, i.e. the six Hazardous Waste Management Units. Second, only a small number of samples (15) are available across the site, i.e. the IEPA samples. Combining these two data sets will not provide areal coverage of surface and subsurface soil conditions at the site to allow preparation of the HHRA and the Current Human Exposure EIR. Therefore, additional soil sampling will be performed as described in Section 6.4.

Tables 4 and 5 indicate that VOCs (Benzene, Ethylbenzene, Monochlorobenzene and Xylene), SVOCs (Dichlorobenzene, Pentachlorophenol and Trichlorobenzene) and PCBs are the constituents most frequently detected in site soils. Consequently, site soil samples, collected as described Section 6.4, will be analyzed for VOCs, SVOCs and PCBs using Methods 8260B, 8270C and 8280, respectively.

Section 6.0

6.0 Site Sampling Plan

6.1 Introduction

This Site Sampling (SSP) is submitted in accordance with Section VI, Work To Be Performed, of the Order, specifically proposing work to be done to meet the requirements of Sections VI.1b, 2, 3 and 4. SSP Sections 6.2, 6.3 and 6.4 describe, respectively, the surface water, groundwater and soil sampling plans that will be implemented, after Agency acceptance, to address the site investigation and impact assessment requirements of AOC Section VI. SSP Sections 6.4 and 6.5, respectively, describe the Ecological Risk Assessment and Human Health Risk Assessment that will be performed to evaluate the risk to the environment resulting from migration of site-related constituents through the surface water, groundwater and/or soil pathways.

6.2 Surface Water Sampling Plan

Surface water and sediment samples will be collected in the Mississippi River and analyzed to determine the concentration of site-related constituents. In addition, benthic community structure will be evaluated at each sediment sampling station to provide data for sediment triad evaluation. Bioassays will be conducted on surface water and sediment samples to determine the toxicity, if any, of these environmental media to sensitive organisms. Fish will be sampled in the area of the plume discharge and upstream of this discharge to determine the impact of groundwater discharge on higher trophic level organisms. Information collected as part of the Surface Water Sampling Plan will be used in the Ecological Risk Assessment.

6.2.1 Plume Discharge

Surface water samples will be collected in the Mississippi River at the top, middle and bottom of the surface water column at three locations immediately adjacent to the groundwater sampling stations described in SSP Sections 6.3.3 and 6.3.4 to determine concentration of site-related constituents in surface water (Figure 17). Acute and chronic bioassays will be performed on each surface water sample to determine surface water toxicity. One sediment sample will be

collected at each surface water sampling station and used to perform acute and chronic bioassays to determine sediment toxicity. Benthic community structure will be determined by collecting and evaluating three separate sediment samples at each sampling station. Composite fish samples (3 to 5 fish per sample) will be collected to determine the impact of upstream sources on bottom feeder, forager and predator fish.

Number of Surface Water Samples:	9	
Number of Sediment Samples:	3	
Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C
Number of Benthic Community Structure Samples:	9	
Number of Acute Daphnia Bioassays:	9	
Number of Chronic Daphnia Bioassays:	9	
Number of Acute Minnow Bioassays:	9	
Number of Chronic Minnow Bioassays:	9	
Total Number of Surface Water Bioassays	36	
Number of Acute Hyallela Bioassays	3	
Number of Chronic Hyallela Bioassays	3	
Number of Acute Chironomous Bioassays	3	
Number of Chronic Chironomous Bioassays	3	
Total Number of Sediment Bioassays	12	
Number of Composite Bottom Feeder Fish Samples:	1 (Whole Body)	
Number of Composite Forager Fish Samples:	1 (Whole Body)	
Number of Composite Predator Fish Samples:	1 (Whole Body)	
Number of Composite Game Fish Samples:	1 (Fillet)	
Total Number of Fish Tissue Samples	4	

Analyses: SVOCs Method 8270C

6.2.2 Upstream of Plume Discharge

Surface water samples will be collected in the Mississippi River at the top, middle and bottom of the surface water column at one location upstream of the groundwater sampling stations described in SSP Sections 6.3.3 and 6.3.4 to determine concentration of constituents in surface

water due to upstream discharges (Figure 17). Acute and chronic bioassays will be performed on the surface water sample to determine surface water toxicity. A sediment sample will be collected at the surface water sampling station and used to perform acute and chronic bioassays to determine sediment toxicity. Benthic community structure will be determined by collecting and evaluating three separate sediment samples at the sampling station. Composite fish samples (3 to 5 fish per sample) will be collected to determine the impact of upstream sources on bottom feeder, forager and predator fish.

Number of Surface Water Samples:		3
Number of Sediment Samples:		1
Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C
Number of Benthic Community Structure Samples:		3
Number of Acute Daphnia Bioassays:		3
Number of Chronic Daphnia Bioassays:		3
Number of Acute Minnow Bioassays:		3
Number of Chronic Minnow Bioassays:		3
Total Number of Surface Water Bioassays		12
Number of Acute Hyallela Bioassays		1
Number of Chronic Hyallela Bioassays		1
Number of Acute Chironomous Bioassays		1
Number of Chronic Chironomous Bioassays		1
Total Number of Sediment Bioassays		4
Number of Composite Bottom Feeder Fish Samples:		1 (Whole Body)
Number of Composite Forager Fish Samples:		1 (Whole Body)
Number of Composite Predator Fish Samples:		1 (Whole Body)
Number of Composite Game Fish Samples:		1 (Fillet)
Total Number of Fish Tissue Samples		4
Analyses:	SVOCs	Method 8270C

6.2.3 Downstream of Plume Discharge

Surface water samples will be collected in the Mississippi River at the top, middle and bottom of the surface water column at one location downstream of the groundwater sampling stations described in SSP Sections 6.3.3 and 6.3.4 to determine concentration of constituents in surface

water due to upstream discharges (Figure 17). Acute and chronic bioassays will be performed on the surface water sample to determine surface water toxicity. A sediment sample will be collected at the surface water sampling station and used to perform acute and chronic bioassays to determine sediment toxicity. Benthic community structure will be determined by collecting and evaluating three separate sediment samples at the sampling station. Composite fish samples (3 to 5 fish per sample) will be collected to determine the impact of upstream sources on bottom feeder, forager and predator fish.

Number of Surface Water Samples:	3	
Number of Sediment Samples:	1	
Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C
Number of Benthic Community Structure Samples:	3	
Number of Acute Daphnia Bioassays:	3	
Number of Chronic Daphnia Bioassays:	3	
Number of Acute Minnow Bioassays:	3	
Number of Chronic Minnow Bioassays:	3	
Total Number of Surface Water Bioassays	12	
Number of Acute Hyallela Bioassays	1	
Number of Chronic Hyallela Bioassays	1	
Number of Acute Chironomous Bioassays	1	
Number of Chronic Chironomous Bioassays	1	
Total Number of Sediment Bioassays	4	
Number of Composite Bottom Feeder Fish Samples:	1 (Whole Body)	
Number of Composite Forager Fish Samples:	1 (Whole Body)	
Number of Composite Predator Fish Samples:	1 (Whole Body)	
Number of Composite Game Fish Samples:	1 (Fillet)	
Total Number of Fish Tissue Samples	4	

Analyses: SVOCs Method 8270C

6.2.4 Channel Section and Surface Water Level

The channel section of the Mississippi River will be measured from bank to bank (subject to property access restrictions) at three locations: one location at the northern end of the study

area, one location in the center of the study area and one location at the southern end of the study area. Top of bank and dry channel side slopes will be surveyed to 0.1 ft. Wet channel sections will be continuously measured to 1.0 ft with a recording fathometer. Channel cross sections will be prepared for each measuring transect.

Surface water levels will be recorded daily to an accuracy of 0.1 ft. daily for the duration of field work.

6.3 Groundwater Sampling Plan

As discussed in Section 4.0 Nature and Extent of Impacted Groundwater, VOC and SVOC plumes extend from the plant process area downgradient to the Mississippi River. Northern and southern boundaries of the plumes are reasonably well defined at their downgradient ends in the SHU and the MHU. However, plume boundaries are not well defined east of the TRRA tracks located on the western boundary of Lot F. In addition, plume boundaries are not well defined in the deeper portions of the aquifer (DHU). Therefore, additional investigation is needed to define the horizontal and vertical extent of VOCs and SVOCs at the boundaries of the Facility.

Groundwater samples will be collected:

- at the northern and southern boundaries of the known plume to confirm the horizontal and vertical extent of groundwater containing site-related constituents;
- at the downgradient boundary of the known plume to determine current concentrations of site-related constituents adjacent to the Mississippi River; and
- at the upgradient, midpoint and downgradient portions of the plume core to determine constituent concentrations and groundwater geochemistry within the plume core.

In addition, water levels will be measured in 27 small-diameter piezometers in order to define groundwater gradient and flow direction. Slug tests will be performed in each of these piezometers to determine aquifer hydraulic conductivity. Groundwater gradient and aquifer hydraulic conductivity will be used to determine groundwater flow rates.

Information from the Groundwater Sampling Plan will be used to determine the nature and extent of migration of site-related constituents and determine groundwater flux to surface water. Groundwater quality data will be used in both the Human Health Risk Assessment (HHRA) and the Ecological Risk Assessment (ERA).

6.3.1 Northern Plume Boundary

Groundwater samples will be collected along three sampling transects located at the upgradient, midpoint and downgradient portions of the northern plume boundary as defined by existing data in order to determine the current location of the plume boundary (Figure 18). Each transect will have three sampling stations: 1) Station 1 located at the suspected plume boundary, 2) Station 2 located 600 ft. north of Station 1 and 3) Station 3 located 600 ft. north of Station 2. Filtered groundwater samples will be collected every 40 ft. from the water table to the bottom of the aquifer using push sampling technologies such as Geoprobe®, HydroPunch®, Microwell®, Waterloo Profiler® or equivalent and low-flow sampling techniques. East of the TRRA tracks, aquifer saturated thickness is estimated to be approximately 90 ft with depth to water at 10 ft. below ground surface (bgs) and bottom of the aquifer at 100 ft. bgs. West of the TRRA tracks, aquifer saturated thickness is estimated to be approximately 120 ft. with depth to water at 20 ft. bgs and bottom of the aquifer at 140 ft. bgs. For a vertical sampling interval of 40 ft, groundwater samples will be collected at depths of 10, 50 and 90 ft. bgs where the aquifer saturated thickness is estimated to be 80 ft. and at depths of 20, 60, 100 and 140 ft. bgs where saturated thickness is estimated to be 120 ft.

Number of Groundwater Samples (80 ft. Saturated Thickness):	18
Number of Groundwater Samples (120 ft. Saturated Thickness):	12
Total Number of Samples	40

Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C

6.3.2 Southern Plume Boundary

Groundwater samples will be collected along three sampling transects located at the upgradient, midpoint and downgradient portions of the southern plume boundary as defined by existing data in order to determine the current location of the plume boundary (Figure 18). Each transect will have three sampling stations: 1) Station 1 located at the plume boundary, 2) Station 2 located 600 ft. north of Station 1 and 3) Station 3 located 600 ft. north of Station 2. Filtered groundwater samples will be collected every 40 ft. from the water table to the bottom of the aquifer using push sampling technologies such as Geoprobe®, HydroPunch®, Microwell®, Waterloo Profiler® or equivalent and low-flow sampling techniques. East of the TRRA tracks, aquifer saturated thickness is estimated to be approximately 90 ft with depth to water at 10 ft. below ground surface (bgs) and bottom of the aquifer at 100 ft. bgs. West of the TRRA tracks, aquifer saturated thickness is estimated to be approximately 120 ft. with depth to water at 20 ft. bgs and bottom of the aquifer at 140 ft. bgs. For a vertical sampling interval of 40 ft, groundwater samples will be collected at depths of 10, 50 and 90 ft. bgs where the aquifer saturated thickness is estimated to be 80 ft. and at depths of 20, 60, 100 and 140 ft. bgs where saturated thickness is estimated to be 120 ft.

Number of Groundwater Samples (80 ft. Saturated Thickness):	18
Number of Groundwater Samples (120 ft. Saturated Thickness):	12
Total Number of Samples	40

Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C

6.3.3 Downgradient Plume Boundary

Groundwater samples will be collected at two sampling stations adjacent to the Mississippi River to determine constituent concentrations at the downgradient boundary of the plume. (Figure 18). Filtered groundwater samples will be collected every 40 ft. from the water table to the bottom of the aquifer using push sampling technologies such as Geoprobe®, HydroPunch®, Microwell®, Waterloo Profiler® or equivalent and low-flow sampling techniques. Aquifer saturated thickness is estimated to be approximately 120 ft. with depth to water at 20 ft. bgs and bottom of the aquifer at 140 ft. bgs. For a vertical sampling interval of 40 ft, groundwater

samples will be collected at depths of 20, 60, 100 and 140 ft. bgs where saturated thickness is estimated to be 120 ft.

Number of Groundwater Samples (120 ft. Saturated Thickness): 8

Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C

6.3.4 Plume Core

Groundwater samples will be collected at three sampling stations located at the upgradient, midpoint and downgradient portions of the plume core as defined by existing data in order to determine the constituent concentrations and groundwater geochemistry within the plume core (Figure 18). Filtered groundwater samples will be collected every 40 ft. from the water table to the bottom of the aquifer using push sampling technologies such as Geoprobe®, HydroPunch®, Microwell®, Waterloo Profiler® or equivalent and low-flow sampling techniques. East of the TRRA tracks, aquifer saturated thickness is estimated to be approximately 90 ft with depth to water at 10 ft. below ground surface (bgs) and bottom of the aquifer at 100 ft. bgs. West of the TRRA tracks, aquifer saturated thickness is estimated to be approximately 120 ft. with depth to water at 20 ft. bgs and bottom of the aquifer at 140 ft. bgs. For a vertical sampling interval of 40 ft, groundwater samples will be collected at depths of 10, 50 and 90 ft. bgs where the aquifer saturated thickness is estimated to be 90 ft. and at depths of 20, 60, 100 and 140 ft. bgs where saturated thickness is estimated to be 120 ft.

Number of Groundwater Samples (80 ft. Saturated Thickness):	6
Number of Groundwater Samples (120 ft. Saturated Thickness):	4
Total Number of Samples	10

Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C

Geochemical Parameters:	ORP	Sulfate
	DO	Alkalinity
	Ferrous Iron	Methane
	Manganese	Carbon Dioxide
	Nitrate	

6.3.5 Upgradient Groundwater

Groundwater samples will be collected at three sampling stations located upgradient of the process area to determine groundwater quality migrating onto the site (Figure 18). Filtered groundwater samples will be collected every 40 ft. from the water table to the bottom of the aquifer. East of the TRRA tracks, aquifer saturated thickness is estimated to be approximately 90 ft with depth to water at 10 ft. below ground surface (bgs) and bottom of the aquifer at 100 ft. bgs. For a vertical sampling interval of 40 ft, groundwater samples will be collected at depths of 10, 50 and 90 ft. bgs where the aquifer saturated thickness is estimated to be 80 ft.

Number of Groundwater Samples:	9	
Analyses:	VOCs	Method 8260B
	SVOCs	Method 8270C

6.3.6 Groundwater Flow Direction

Nine piezometer clusters will be installed at the locations shown on Figure 18 to define groundwater flow direction. Three piezometer clusters will be installed at the upgradient portion of the known plume near the eastern end of the facility process area. Another three piezometer clusters will be installed at the midpoint of the known plume at the western boundary of the process area. A final three piezometer clusters will be installed at the downgradient end of the known plume adjacent to the USACE floodwall. Each piezometer cluster will consist of three small-diameter (1-inch) wells completed in the shallow, intermediate and deep portions of the aquifer. Water levels will be measured quarterly for one year and used to prepare water-level elevation maps showing seasonal changes in groundwater level and flow direction.

Number of Shallow Piezometers:	9
Number of Intermediate Piezometers:	9
Number of Deep Piezometers:	9
Total Number of Piezometers	27

6.3.7 Groundwater Flow Rate

Falling and rising head slug tests will be performed on each piezometer installed as described in Section 6.3.5 using a slug of known volume and in-well, short-time interval, automatic water-level recorders. Aquifer hydraulic conductivity will be calculated for each piezometer using the falling head and rising head slug test data. Groundwater flow rates will be determined by using measured groundwater gradients and calculated aquifer hydraulic conductivities.

Number of Shallow Slug Tests:	9
Number of Intermediate Slug Tests:	9
Number of Deep Slug Tests:	9
Total Number of Slug Tests	27

6.4 Soil Sampling Plan

Surface soil samples will be collected to provide information for the Human Health Risk Assessment. Subsurface soil samples will be collected to determine if site-related constituents present in the unsaturated zone can leach to groundwater as a result of infiltration. Stratified random sampling will be performed to accomplish the objectives described above. A grid will be used to determine random sampling locations. Information in the DOCC Report, such as plant history, site maps and historical air photos will be used to stratify or bias soil sample locations toward the area within a grid cell where past operations might have adversely affected surface and subsurface soil. Final soil sampling locations will be selected in conjunction with the Agency.

6.4.1 Surface Soil

Surface soil samples (0 to 3 ft. bgs) will be collected using Geoprobe® or equivalent push sampling technology at the center points of a 600 by 600 ft. grid superimposed on the site or at sampling locations biased toward known or potential source areas to determine the concentration of site-related constituents in surface soil (Figure 19).

Number of Surface Soil Samples: 48

Analyses	VOCs	Method 8260B
	SVOCs	Method 8270C

	PCBs	Method 8280

6.4.2 Subsurface Soil

Continuous subsurface soil samples will be collected from three feet below grade to the water table using Geoprobe® or equivalent push sampling technology at the center points of a 600 by 600 ft. grid superimposed on the site or at sampling locations biased toward known or potential source areas to determine the leachable concentration of site-related constituents in subsurface soil (Figure 19). The sample with the highest PID or FID reading will be selected for SPLP extraction and VOC analysis. A composite sample of unsaturated subsurface soil will be prepared for SPLP extraction and SVOC analysis by using equal aliquots of each soil sample or by selecting portions the subsurface soil samples on the basis of discoloration, odor, etc. East of the TRRA tracks, the unsaturated zone is assumed to be 10 ft. thick; west of the tracks it is assumed to be 20 ft. thick.

Number of Subsurface Soil Samples: 48

Analyses	VOCs	SPLP Extraction/Method 8260B
	SVOCs	SPLP Extraction/Method 8270C
	PCBs	SPLP Extraction/Method 8280

6.5 Human Health Risk Assessment

Surface water, groundwater and soil analytical data will be used to determine the risks associated with worker exposure during subsurface excavations and facility maintenance operations such as mowing. Fish fillet analytical data will be used to assess risks associated with trespassing fisher ingestion of game fish fillets. Worker or residential exposure via ingestion of groundwater used as a drinking water source is not a current or future potential pathway. Surface water is source of municipal water supply and groundwater use is prohibited by both the Village of Cahokia and the Village of Sauget (Attachments 1 and 2). Access to the site is controlled by fencing and site security personnel. Therefore, trespasser exposure to site soil is not a current or potential future exposure pathway. A Human Health Risk Assessment Work Plan is included in Attachment 3.

6.6 Ecological Risk Assessment

Surface water and sediment bioassay data, along with fish tissue analytical data, will be used to assess the ecological impact of groundwater discharge to surface water. A bottom feeder (channel catfish), a predator fish (large mouth bass) and a fish-eating bird (great blue heron) will be used as endpoint organisms. An Ecological Risk Assessment Work Plan is included in Attachment 4.

6.7 Deliverables

6.7.1 Quality Assurance Project Plan

Draft Quality Assurance Project Plans (QAPPs) will be prepared for the Surface Water, Groundwater and Soil Sampling Plans and submitted separately to USEPA for review and acceptance. Current plans call for submitting the Soil Sampling Plan QAPP in August 2000, the Groundwater Sampling Plan QAPP in March 2001 and the Soil Sampling Plan QAPP in June 2001. All QAPPS will follow current USEPA Region 5 RCRA guidance.

6.7.2 Health and Safety Plan

A draft Health and Safety Plan (HSP) will be prepared for each QAPP, following current Agency guidance, and submitted to USEPA Region 5 for review.

6.7.3 Site Sampling Plan Report

A draft SSP Report that includes the following information will be prepared and submitted to the Agency:

- SSP scope of work and authorized field change orders;
- a description of all sample collection methods;
- all field notes, sample collection records, etc.;

- all surface water level measurements;
- all groundwater level measurements;
- slug test results and groundwater flow velocities:
- maps showing all sampling locations;
- maps showing horizontal groundwater elevations and flow directions;
- cross sections showing vertical groundwater elevations and flow directions;
- Mississippi River channel sections;
- groundwater elevation and flow direction maps;
- total VOC concentration maps (top, middle and bottom of aquifer); and
- total SVOC concentration maps (top, middle and bottom of aquifer).

6.7.4 Groundwater Environmental Indicators Report

A Groundwater Environmental Indicators Report (EIR) will be prepared using the appropriate USEPA format. Specifically, this EIR will evaluate whether or not migration of impacted groundwater is under control and answer the following questions:

1) Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action, been considered?

2) Is groundwater known or reasonably suspected to be contaminated above appropriately protective levels, i.e. applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

3) Has the migration of contaminated groundwater stabilized (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater" as defined by the monitoring locations at the time of this determination)?

4) Does contaminated groundwater discharge into surface water bodies?

5) Is the discharge of contaminated groundwater into surface water likely to be insignificant (i.e. the maximum concentration of each constituent discharging into surface water is less than 10 times their appropriate groundwater level and there are no other conditions (e.g. the nature and number of discharging contaminants or environmental setting) which significantly increase the potential for unacceptable impacts to surface water, sediments or ecosystems at these concentrations)?

6) Can the discharge of contaminated groundwater into surface water be shown to be currently acceptable (i.e. not cause impacts to surface water, sediments or

the ecosystem that should not be allowed to continue until a final remedy decision can be made and implemented)?

7) Will groundwater monitoring/measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the existing area of contaminated groundwater?

6.7.5 Current Human Exposure Environmental Indicators Report

A Current Human Exposures Environmental Indicators Report (EIR) will be prepared using the appropriate USEPA format. Specifically, this EIR will evaluate whether or not current human exposures are under control and will answer the following questions:

1) Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action been considered in this determination?

2) Are groundwater, soil, surface water, sediments or air media known or reasonably suspected to be contaminated above appropriately protective risk-based levels (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance or criteria) from releases subject to RCRA Corrective Action?

3) Are there complete pathways between contamination and human receptors such that exposures can be reasonably expected under the current (land and groundwater use) conditions?

4) Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be significant (i.e. potentially unacceptable because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency or duration) than assumed in the derivation of the acceptable levels (used to identify the contamination); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above acceptable levels) could result in greater than acceptable risks)?

5) Can the significant exposure (identified in #4) be shown to be within acceptable limits?

6.8 Schedule

Work Element	Start	Finish
• Surface Water Sampling Plan QAPP and HSP	8/1/00	9/1/00
• Surface Water and Sediment Sampling	9/1/00	10/30/00
• Sample Analysis and Data Management	11/1/00	2/28/01
• Ecological Risk Assessment	3/1/01	6/30/01
• Groundwater Sampling Plan QAPP and HSP	3/1/00	3/31/01
• Groundwater Sampling	4/1/01	7/31/01
• Sample Analysis and Data Management	8/1/01	11/30/01
• Groundwater Environmental Indicator Report	12/1/01	12/31/01
• Soil Sampling Plan QAPP and HSP	1/1/03	1/31/03
• Soil Sampling	2/1/03	3/31/03
• Sample Analysis and Data Management	4/1/03	7/31/03
• Human Health Risk Assessment	8/1/03	11/30/03
• Current Human Exposures Environmental Indicators Report	12/1/03	12/31/03
• Site Sampling Plan Report	12/1/03	12/31/03

SDMS US EPA REGION V

COLOR-RESOLUTION - 2

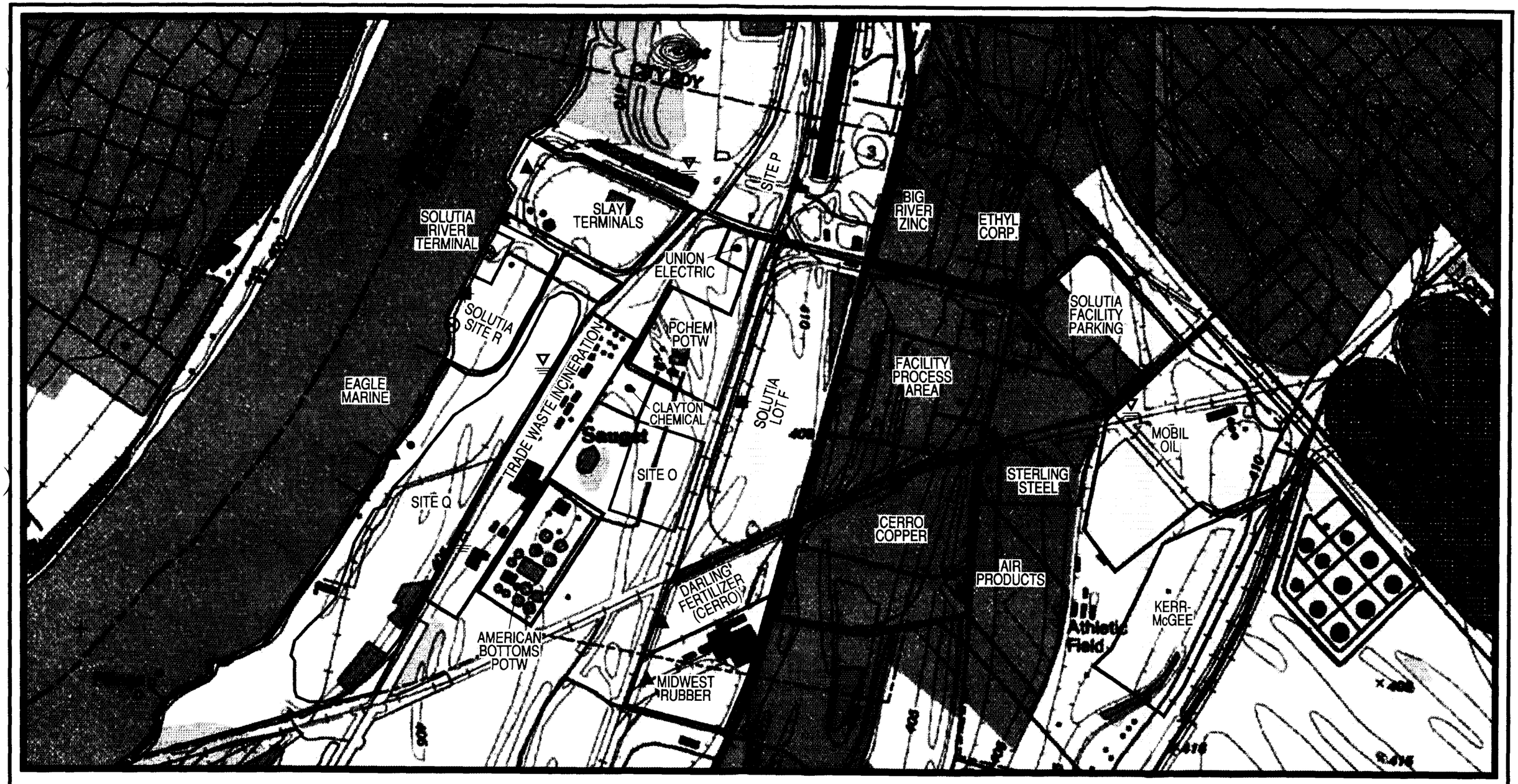
IMAGERY INSERT FORM

The following page(s) of this document include color or resolution variations. Unless otherwise noted, these pages are available in monochrome. The original document is available for viewing at the Superfund Records Center.

SITE NAME	SAUGET AREA 2
DOC ID #	157320
DESCRIPTION OF ITEM(S)	MULTIPLE SITE MAPS
PRP	
DOCUMENT VARIATION	__X__ COLOR **OR** ____ RESOLUTION
DATE OF ITEM(S)	'2000
NO. OF ITEMS	
PHASE	DRAFT AR
OPERABLE UNITS	
PHASE (AR DOCUMENTS ONLY)	____ Remedial ____ Removal ____ Deletion Docket ____Original ____ Update # ____ Volume ____ of ____
COMMENT(S)	
FIGURES	

Figures

Figures



NORTH

MAP REFERENCE:

PORTION OF U.S.G.S. QUADRANGLE MAP
7 ½ MINUTE SERIES (TOPOGRAPHIC)
CAHOKIA, ILLINOIS-MISSOURI 1993

LEGEND:

- ▲ = PLUME BOUNDARY (N/S)
- ⊗ = PLUME BOUNDARY (DOWNGRADIENT)
- ■ = PLUME CORE
- ▽ = WATER LEVEL PIEZOMETERS
- —— = PROPERTY LINE

SCALE:

1/2 1/4 0 1/2 MILE

500 0 500 1000 1500 2000 2500 3000 3500 FEET

1/2 1/4 0 1/2 KILOMETER

QUADRANGLE LOCATION

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 1
SITE LOCATION MAP

DATE:	SEPTEMBER 1, 2000
JOB NO.:	40633-243-007
DRAWN BY:	MAR
CH'K'D BY:	SB
SCALE:	AS SHOWN

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008
PHONE: 847.228.0707
FAX: 847.228.1115

SCALE: 1:62,500

NORTH

MAP REFERENCE:

PORTION OF U.S.G.S. QUADRANGLE MAP
7 ½ MINUTE SERIES (TOPOGRAPHIC)
ST. LOUIS, MISSOURI-ILLINOIS 1904

QUADRANGLE LOCATION

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 2
1904 MAP

DATE: JULY 27, 2000	
JOB NO: 80207002.06	
DRAWN BY: MAR	CHK'D BY: SB
SCALE: AS SHOWN	

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008
PHONE: 847.228.0707
FAX: 847.228.1115

SCALE: 1:24 000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

NORTH

MAP REFERENCE:

PORTION OF U.S.G.S. QUADRANGLE MAP
7 ½ MINUTE SERIES (TOPOGRAPHIC)
CAHOKIA, ILLINOIS-MISSOURI 1954

QUADRANGLE LOCATION

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 3
1954 MAP

DATE:	JULY 27, 2000
JOB NO.:	80207002.06
DRAWN BY: MAR	CHK'D BY: SB
SCALE:	AS SHOWN

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008
PHONE: 847.228.0707
FAX: 847.228.1115

SCALE: 1:24 000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

NORTH

MAP REFERENCE:

PORTION OF U.S.G.S. QUADRANGLE MAP
7 ½ MINUTE SERIES (TOPOGRAPHIC)
CAHOKIA, ILLINOIS-MISSOURI 1954
PHOTOREVISED 1954

QUADRANGLE LOCATION

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 4
1968 MAP

DATE	JULY 27, 2000
JOB NO	80207002.06
DRAWN BY: MAR	CHK'D BY: SB
SCALE:	AS SHOWN

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008
PHONE: 847.228.0707
FAX: 847.228.1115

SCALE: 1:24 000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

NORTH

MAP REFERENCE:

PORTION OF U.S.G.S. QUADRANGLE MAP
7 ½ MINUTE SERIES (TOPOGRAPHIC)
CAHOKIA, ILLINOIS-MISSOURI 1944
PHOTOREVISED 1954

QUADRANGLE LOCATION

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 5
1974 MAP

DATE: JULY 27, 2000	
JOB NO.: 80207002.06	
DRAWN BY: MAR	CHK'D BY: SB
SCALE: AS SHOWN	

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008
PHONE: 847.228.0707
FAX: 847.228.1115

SCALE: 1:24 000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

NORTH

MAP REFERENCE:

PORTION OF U.S.G.S. QUADRANGLE MAP
7 ½ MINUTE SERIES (TOPOGRAPHIC)
CAHOKIA, ILLINOIS-MISSOURI 1993

QUADRANGLE LOCATION

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 6
1993 MAP

DATE: JULY 27, 2000	
JOB NO.: 80207002.06	
DRAWN BY: MAR	CHK'D BY: SB
SCALE: AS SHOWN	

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008
PHONE: 847.228.0707
FAX: 847.228.1115

C:\wip\POST_C~1\figure7.dgn Jul. 25, 2000 10:13:06

KETONE RESIDUE TANK
ITEM 595

BENZYL CHLORIDE
RESIDUE TANK
ITEM 189

STEAMER OVERHEAD TANK
ITEM 407

CHLOR/ALKALI PAD

SPENT CARBON SURGE TANK
ITEM 767

PCB WAREHOUSE

BLDG. BBU
DRUM STORAGE
WAREHOUSE

STATE ROUTE 3

MONSANTO AVE.

STATE AID ROUTE 10

EMPLOYEE PARKING

CONTRACTORS PARKING

CONSTRUCTION

SOLUTIA DR.

1 ST ST.

2 ND ST.

3 RD ST.

5-TH ST.

H ST.

G ST.

E ST.

D ST.

B ST.

FALLING SPRINGS ROAD

SOLUTIA SIGN

TRUCK SCALE

BK OFFICE BUILDING

LUNCH ROOM

CG LOCKER ROOM

LAB

CCB 811

CT 816

CA IDLE

CH

GATEWAY BUILDING

GATEWAY ENERGY

BBW 816

BBZ 810

BBL 252

BBK 252

BBB 277

BBG 811

BBN 245

BBO 240

BBP 808

BBU 808

BBO

255 IDLE

233

SUB 7

SUB 11

SUB 12

SUB 4

SUB 18

LEGEND:

DENOTES LOCATION OF MAIN PLANT VEHICULAR OR PEDESTRIAN ENTRANCE/EXIT

DENOTES LOCATION OF ALTERNATE PLANT EGRESS GATE

HEAVY LINE AT HWMU AREAS REPRESENT RUN OFF CONTROL STRUCTURE

REV	DATE	DESCRIPTION	CHKD APPD
1	11-24-94	REMOVED CONDENSATE TANK 612 & OLD DRUM AREA & HIGH BOILER 552	HILLER
0	4-26-94	CURRENT ISSUE	RAKOWSKI

Monsanto

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W. G. KRUMMRICH PLANT SAUGET, IL

FIGURE #7
HAZARDOUS WASTE MANAGEMENT UNITS
W. G. KRUMMRICH PLANT

	BY	DATE
DRAWN	SUTER	4-26-94
CHECKED		
APPROVED	RAKOWSKI	4-26-94

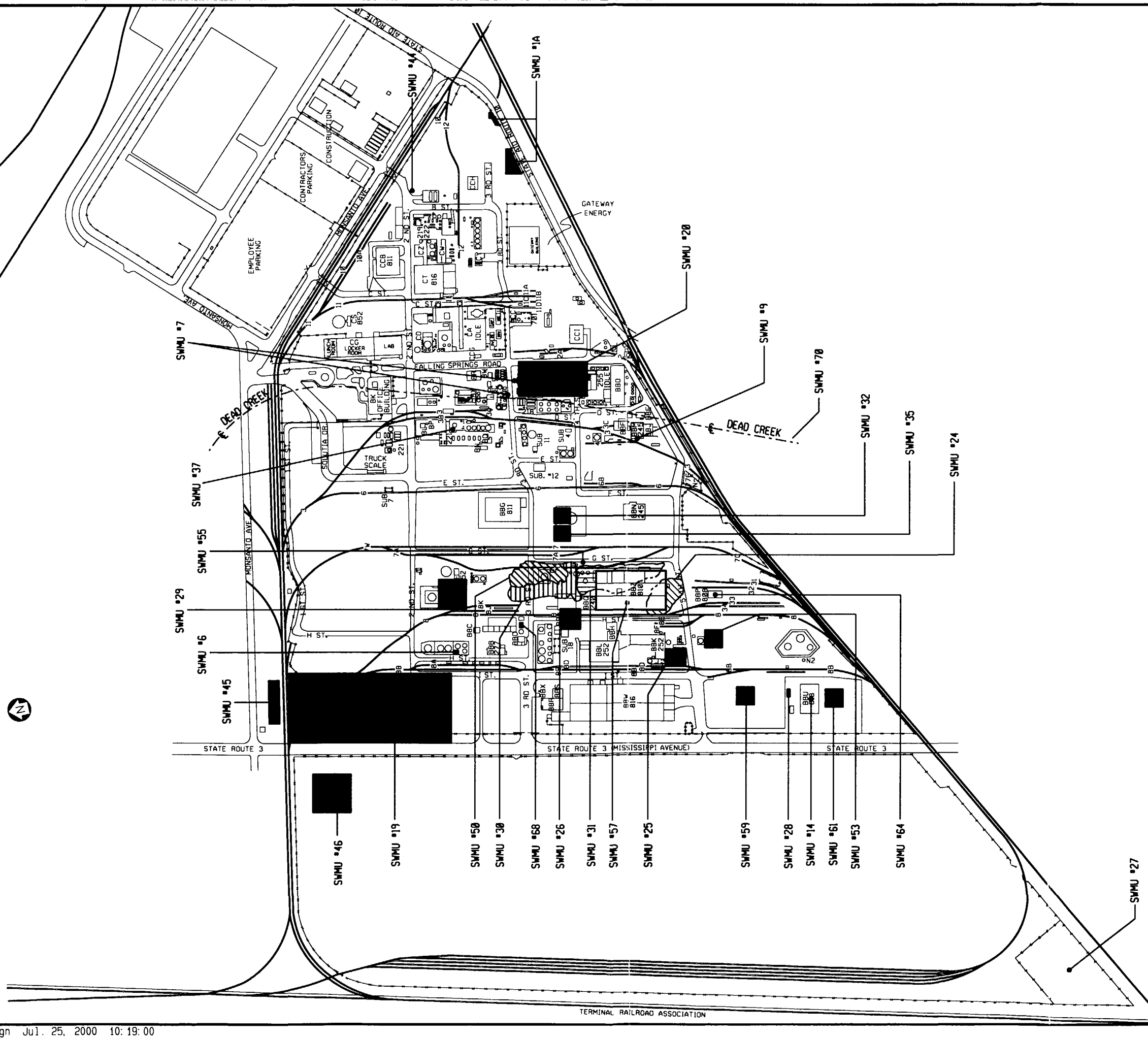
	BY	DATE	DEPT.
APPROVED	DAINES	4-26-94	

SCALE 1"=150' APPROX.

DWG. NO. HWMU

REV. 1

ENVIRONMENTAL



SWMU #66	PLANT SEWERS SEE DRAWING: SEWERSYS
SWMU #71	TRUCK & RAILCAR LOADING AND UNLOADING AREAS (PLANT WIDE) SEE DRAWINGS: FOR TRUCKS SEE DRAWING: TRUCKDK FOR RAILCARS SEE DRAWING: RCRARAIL

NOTE:

1. 1/97 REVISITORS CORRESPOND TO THE DRAFT RCRA PART B PERMIT APPLICATION (sec. 3)

REV	BY	DATE	DESCRIPTION	CHKD	APPD
1	CRABLE	11-24-99	ADDED SWMU #70 & GENERAL REVISIONS	MILLER	
0	SUTER	11-27-95	CURRENT ISSUE	RAKOWSKI	

Monsanto

W. G. KRUMMRICH PLANT SAUGET, IL

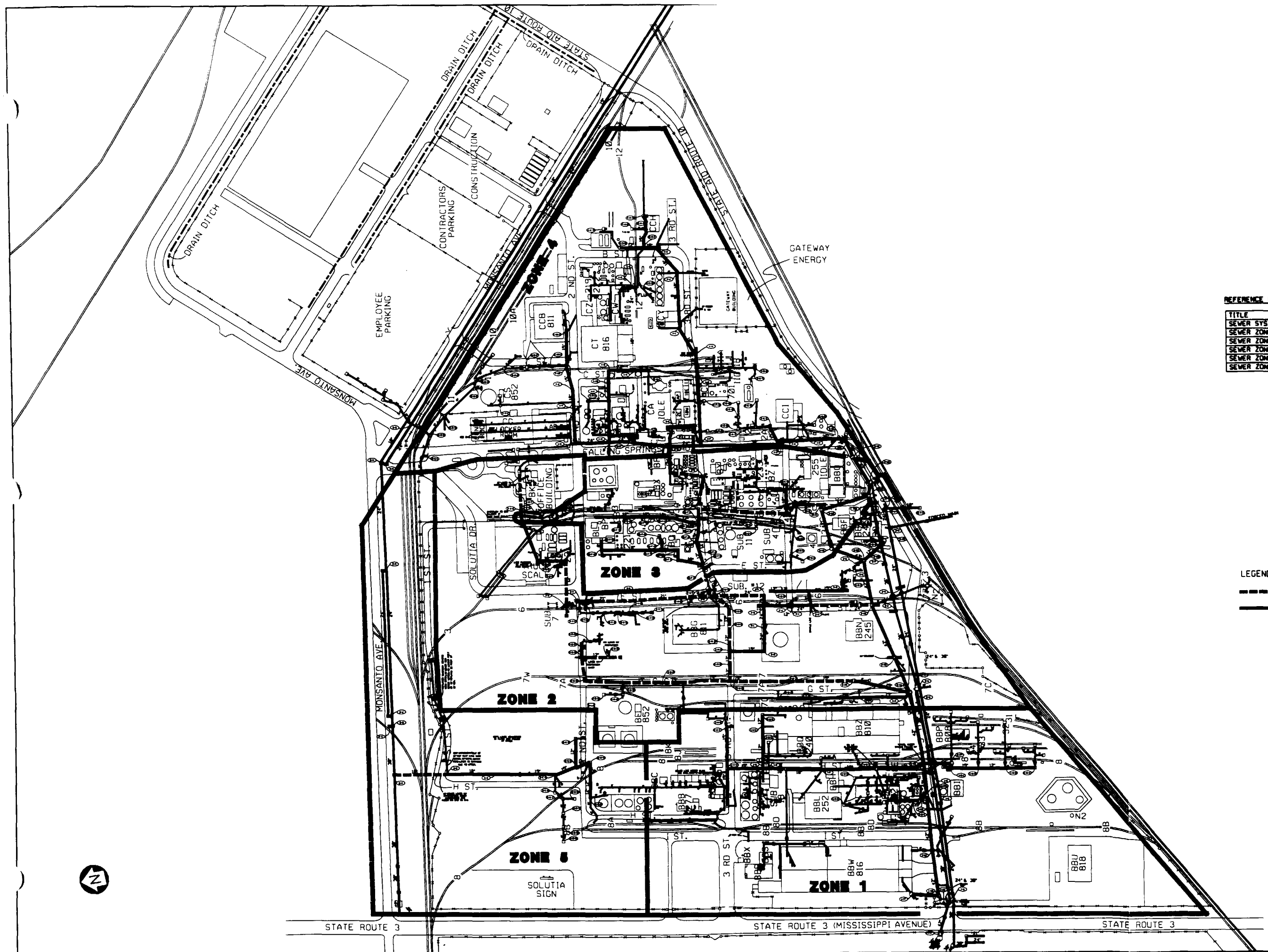
FIGURE #8
SOLID WASTE MANAGEMENT UNITS
W. G. KRUMMRICH PLANT

	BY	DATE		BY	DATE	DEPT.
DRAWN	SUTER	11-27-95	APPROVED	GAINES	11-27-95	
CHECKED			APPROVED			BLOCK
APPROVED	RAKOWSKI	11-27-95	TYPE	EST. NO.	--	

SCALE 1"=200' APPROX. | DWG. NO. SWMU | REV. 1

ENVIRONMENT

C:\wip\POST_C~1\figure8.dgn Jul. 25, 2000 10:19:00



REFERENCE DRAWINGS

TITLE	OLD DWG. NO.	NEW DWG. NO.
SEWER SYSTEM	TS-D-18588	SEWERSYS
SEWER ZONE 1	TS-D-18581	SEWER#1
SEWER ZONE 2	TS-D-14187	SEWER#2
SEWER ZONE 3	TS-D-15178	SEWER#3
SEWER ZONE 4	TS-D-18584	SEWER#4
SEWER ZONE 5	TS-D-18585	SEWER#5

LEGEND:

- SOLID SEWER LID
- GRATED SEWER LID
- SEWER
- TRENCH SEWER
- DRAIN
- PLUG OR CAP
- STREET DRAIN
- ABP — ACID BRICK PLUG
- CO — CLEANOUT
- CP — CONCRETE PLUG
- DCI — DUCTILE CAST IRON
- PEP — HIGH DENSITY POLYETHLENE PIPE
- RCP — REINFORCED CONCRETE PIPE
- SR — SAMPLE RISER
- VCP — VETRIFIED CLAY PIPE
- ABANDONED/SEWERS/MANHOLES
- DRAIN DITCH
- L — LINED SEWER SYSTEM

LEGEND:

- INDICATES SEWER IS LINED
- INDICATES SEWER TO BE LINED

REV	BY / DATE	DESCRIPTION	CHKD / APPD
2	SUTER 7-22-96	UPDATED PLANT MAP	RAKOWSKI
1	SUTER 4-4-94	ROWA UPDATES	RAKOWSKI
0	SUTER 4-26-94	CURRENT ISSUE	RAKOWSKI

Monsanto

W. G. KRUMMRICH PLANT — SAUGET, IL

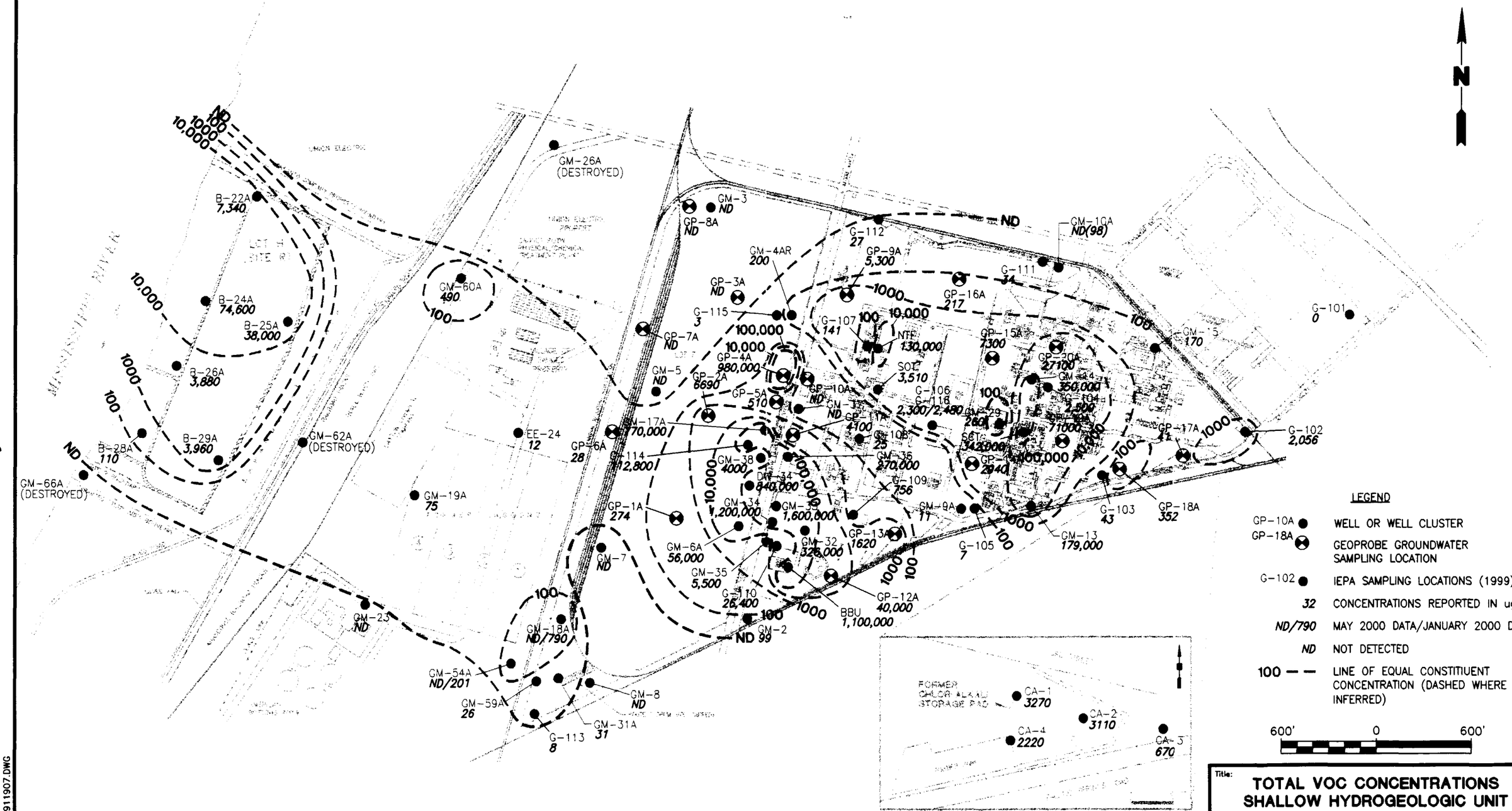
LAYOUT SEWER SYSTEM W. G. KRUMMRICH PLANT

	BY	DATE		BY	DATE	DEPT.
DRAWN	SUTER	4-26-94	APPROVED	GAINES	4-26-94	841
CHECKED			APPROVED			BLOCK
APPROVED	RAKOWSKI	4-26-94	TYPE	EST. NO.	--	103

SCALE	DWG. NO.	REV.
1"=150' APPROX.	SEWERSYS	2

UTILITY

...\BRENT_~2\civil\sewersys.dgn Jul. 28, 2000 13:39:39



LEGEND

- GP-10A ● WELL OR WELL CLUSTER
- GP-18A ⊗ GEOPROBE GROUNDWATER SAMPLING LOCATION
- G-102 ● IEPA SAMPLING LOCATIONS (1999)
- *32* CONCENTRATIONS REPORTED IN ug/L
- *ND/790* MAY 2000 DATA/JANUARY 2000 DATA
- *ND* NOT DETECTED
- 100 — — LINE OF EQUAL CONSTITUENT CONCENTRATION (DASHED WHERE INFERRED)

600' 0 600'

Title:

TOTAL VOC CONCENTRATIONS SHALLOW HYDROGEOLOGIC UNIT

W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

Prepared For: SOLUTIA, INC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.C.	Date: 03MAY00	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	10
Project Mgr: D.C.	Office: NY	
File No: MO3911907	Project: 06639Y	

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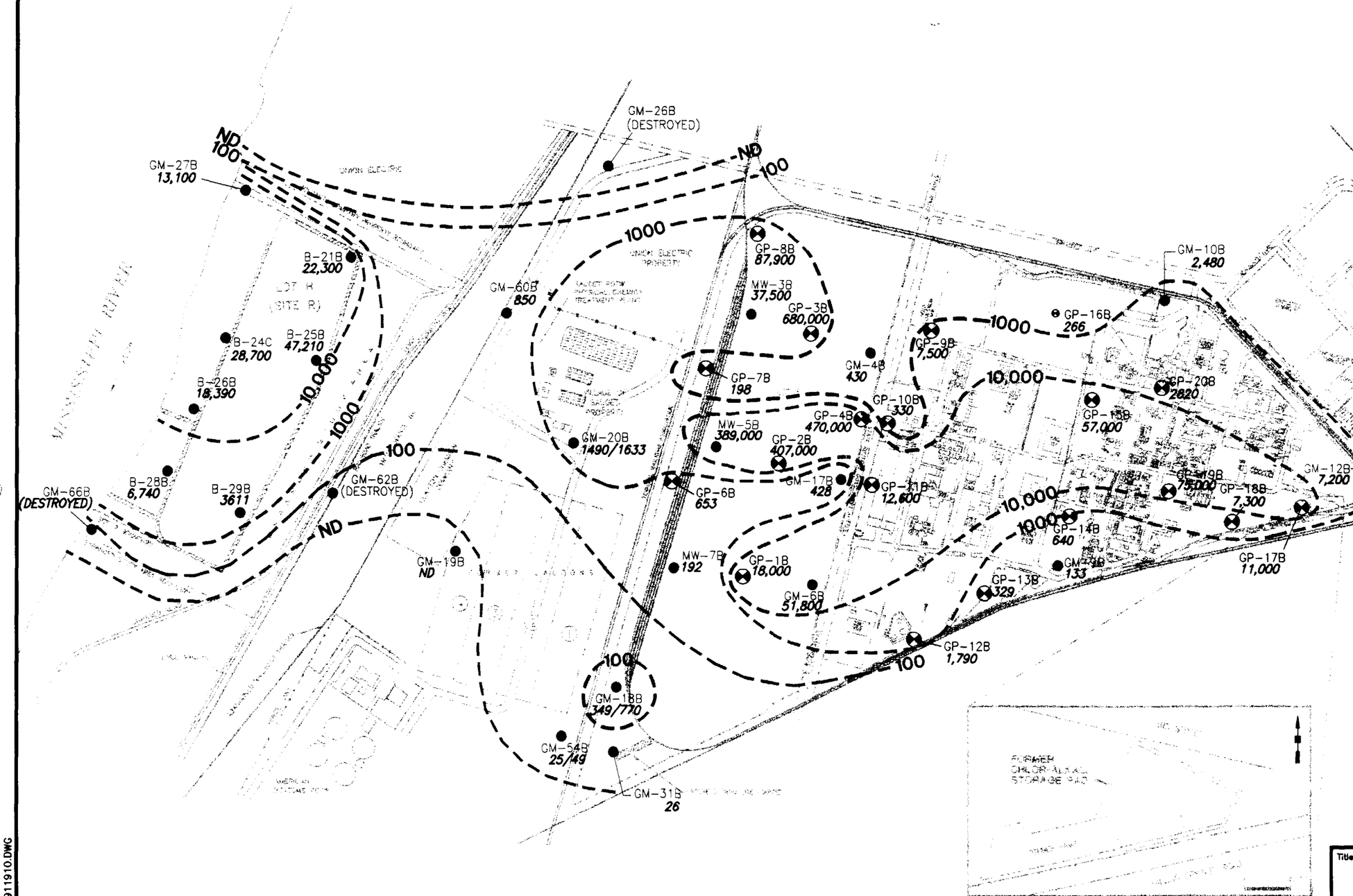

Title:

TOTAL VOC CONCENTRATIONS MIDDLE HYDROGEOLOGIC UNIT

W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

Prepared For: SOLUTIA, INC

ROUX ASSOCIATES, INC. Environmental Consulting & Management	Compiled by: D.C.	Date: 6/00	FIGURE 11
	Prepared by: R.K.	Scale: AS SHOWN	
	Project Mgr: D.C.	Office: NY	
	File No: M03911910	Project: 08639Y	

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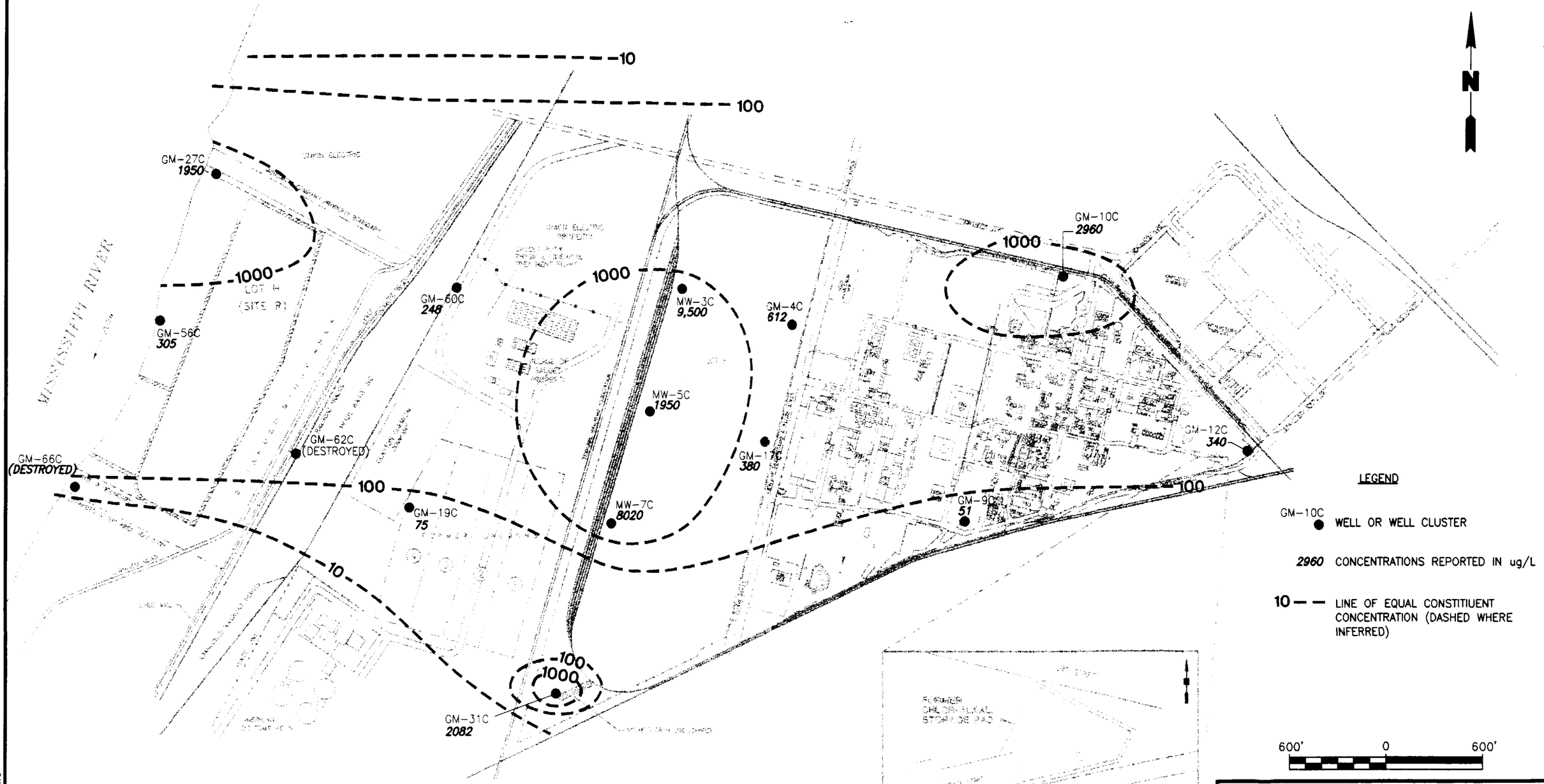

Title:

TOTAL VOC CONCENTRATIONS DEEP HYDROGEOLOGIC UNIT

W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

Prepared For:
SOLUTIA, INC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.C.	Date: 03MAY00	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	12
Project Mgr: D.C.	Office: NY	
File No: M03911909	Project: 08639Y	

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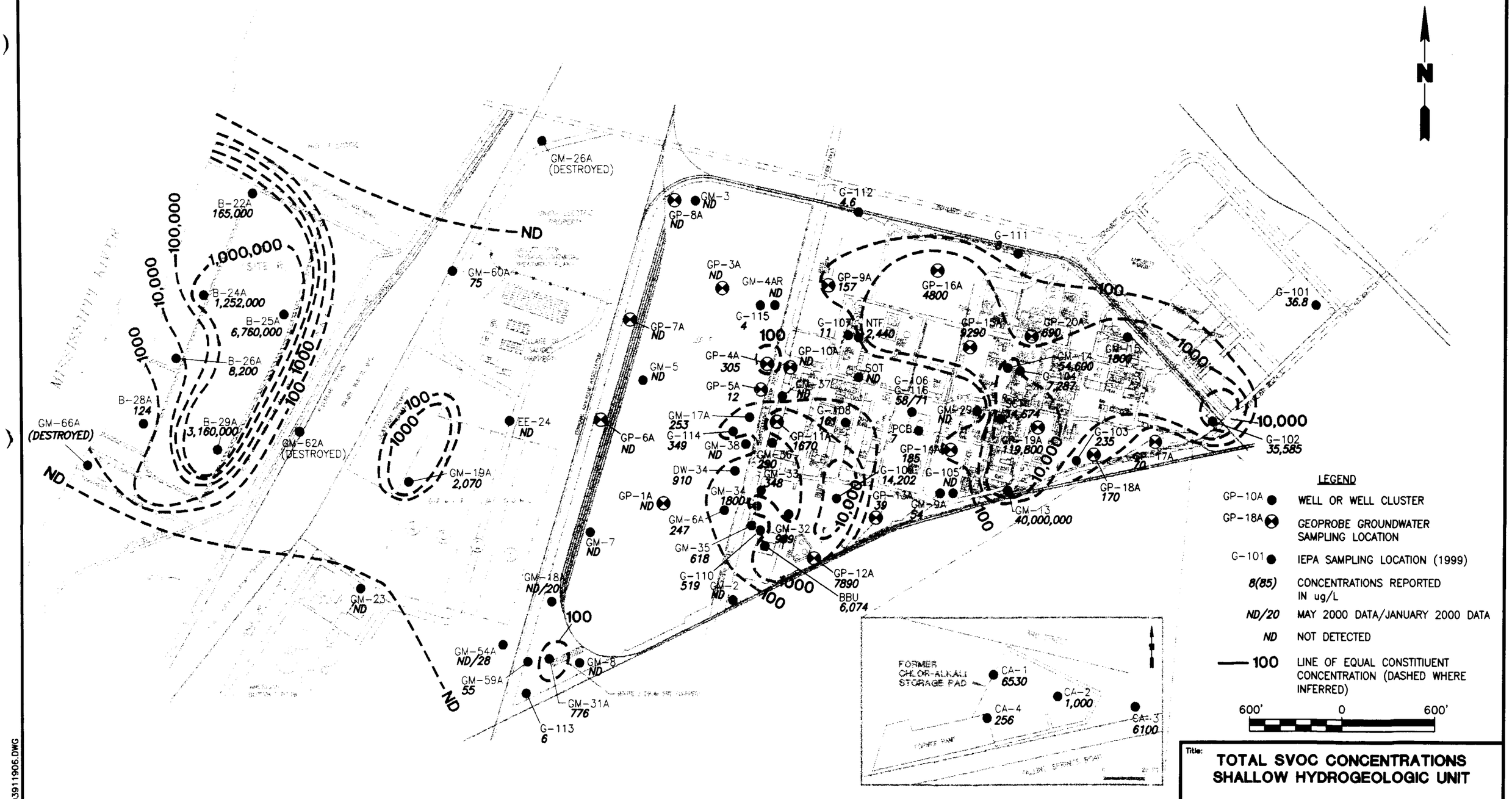

Title:

TOTAL SVOC CONCENTRATIONS SHALLOW HYDROGEOLOGIC UNIT

W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

Prepared For: SOLUTIA, INC

ROUX ASSOCIATES, INC. Environmental Consulting & Management	Compiled by: D.C.	Date: 03MAY00	FIGURE 13
	Prepared by: R.K.	Scale: AS SHOWN	
	Project Mgr: D.C.	Office: NY	
	File No: M03911906	Project: 06639Y	

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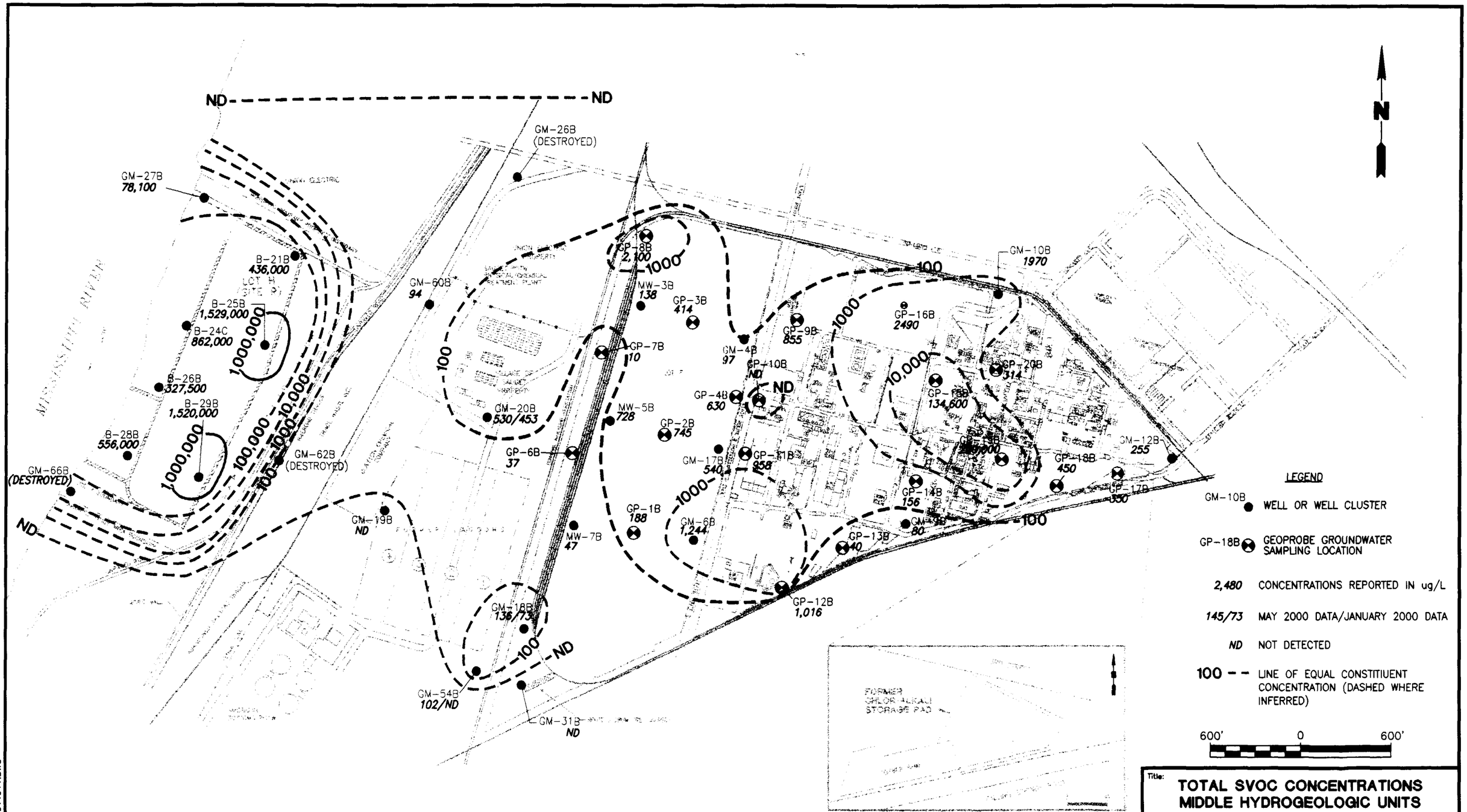

Title:

TOTAL SVOC CONCENTRATIONS MIDDLE HYDROGEOLOGIC UNITS

W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

Prepared For:
SOLUTIA, INC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.C.	Date: 03MAY00	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	14
Project Mgr: D.C.	Office: NY	
File No: MO3911911	Project: 06839Y	

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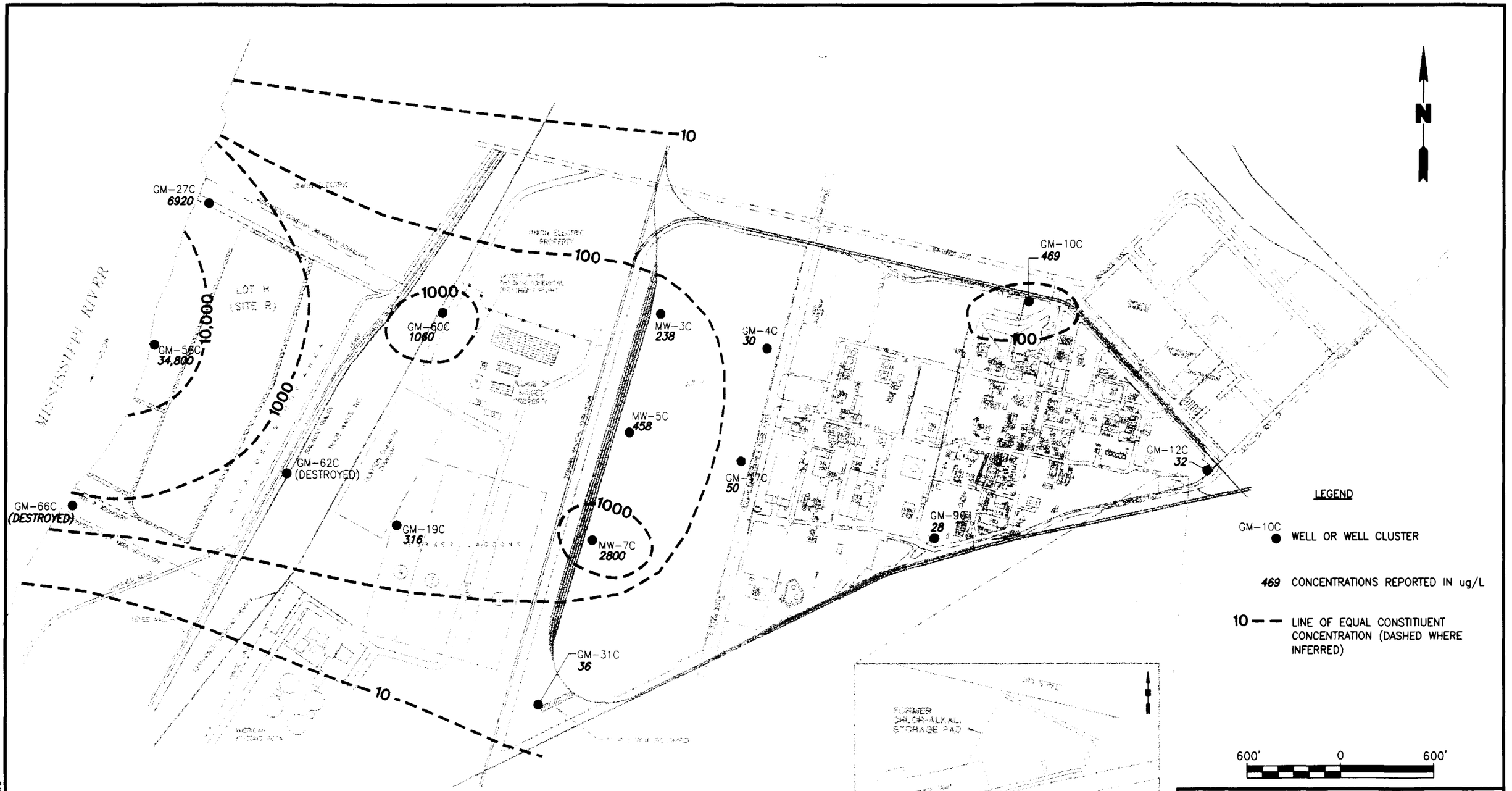

Title:

TOTAL SVOC CONCENTRATIONS DEEP HYDROGEOLOGIC UNIT

W.G. KRUMMRICH PLANT
SAUGET, ILLINOIS

Prepared For:
SOLUTIA, INC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.C.	Date: 03MAY00	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	15
Project Mgr: D.C.	Office: NY	
File No: M03911908	Project: 06639Y	

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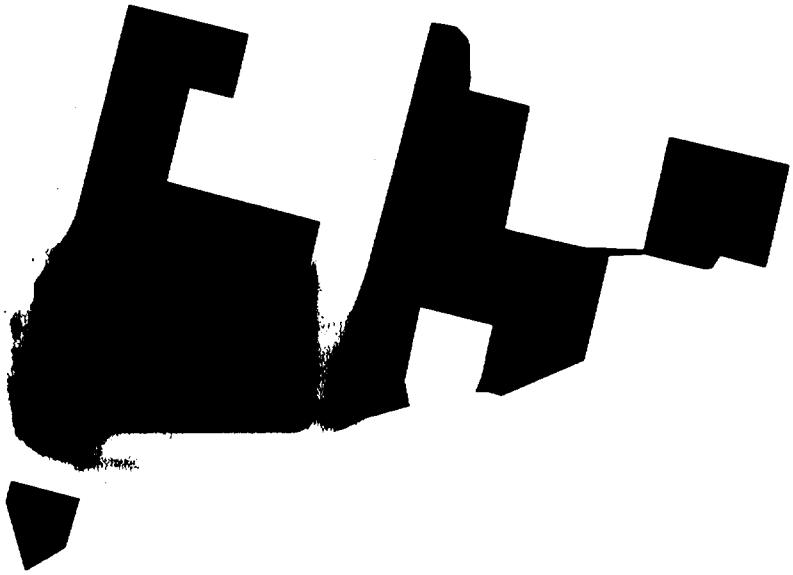

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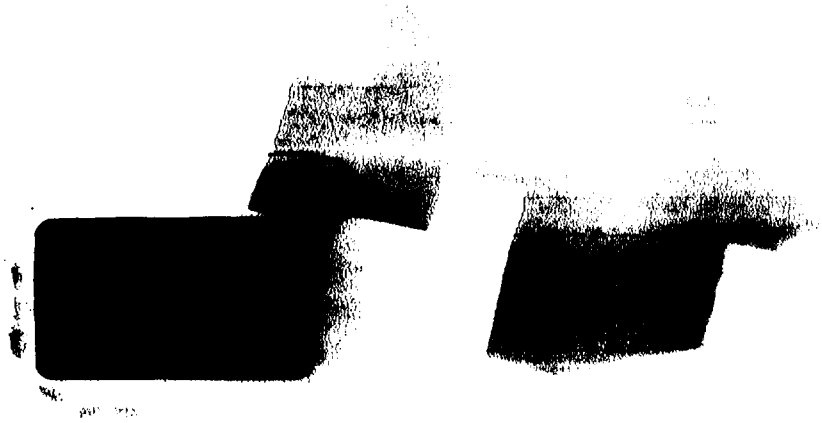

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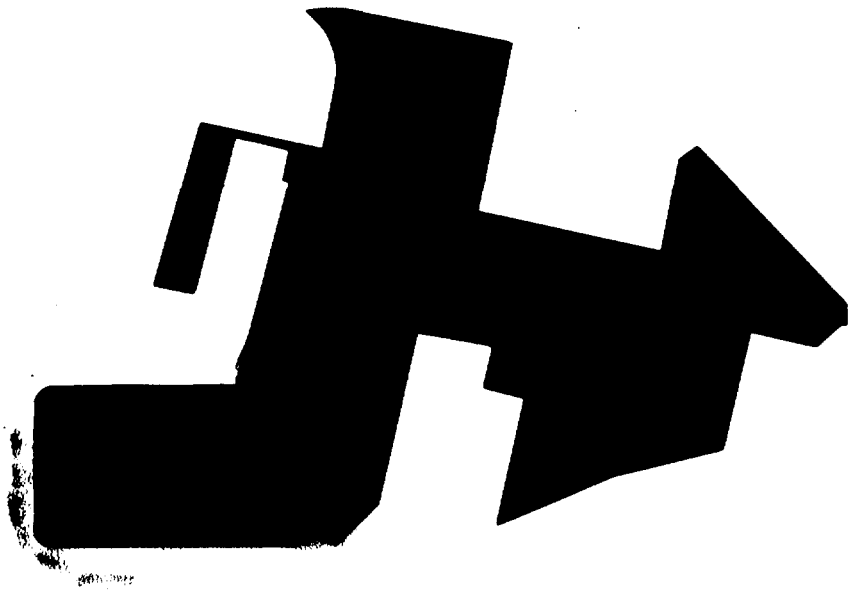

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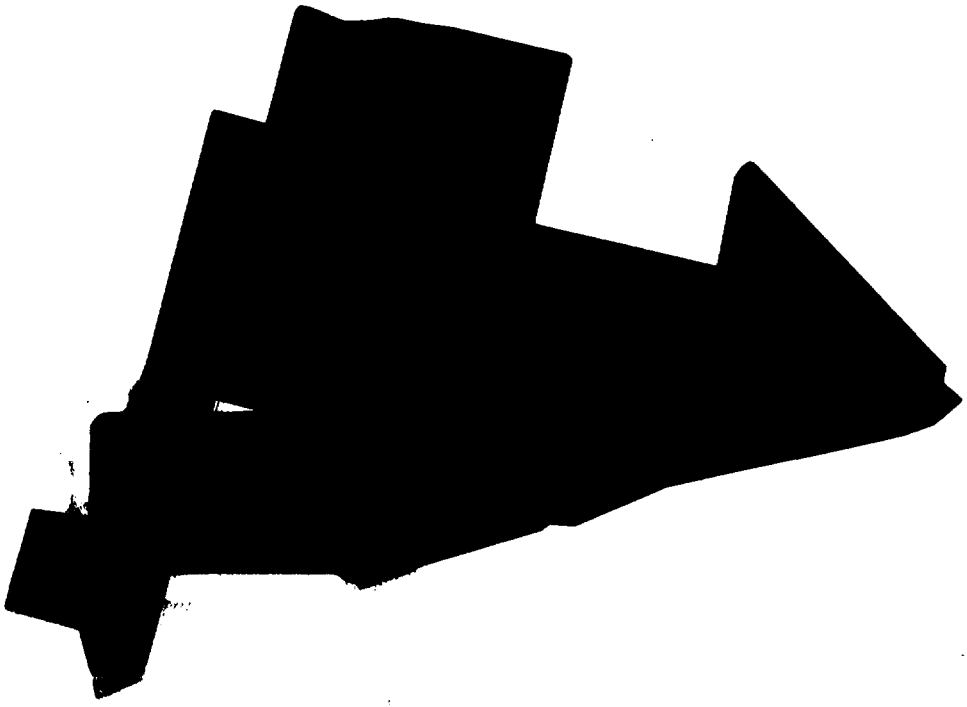

LEGEND:

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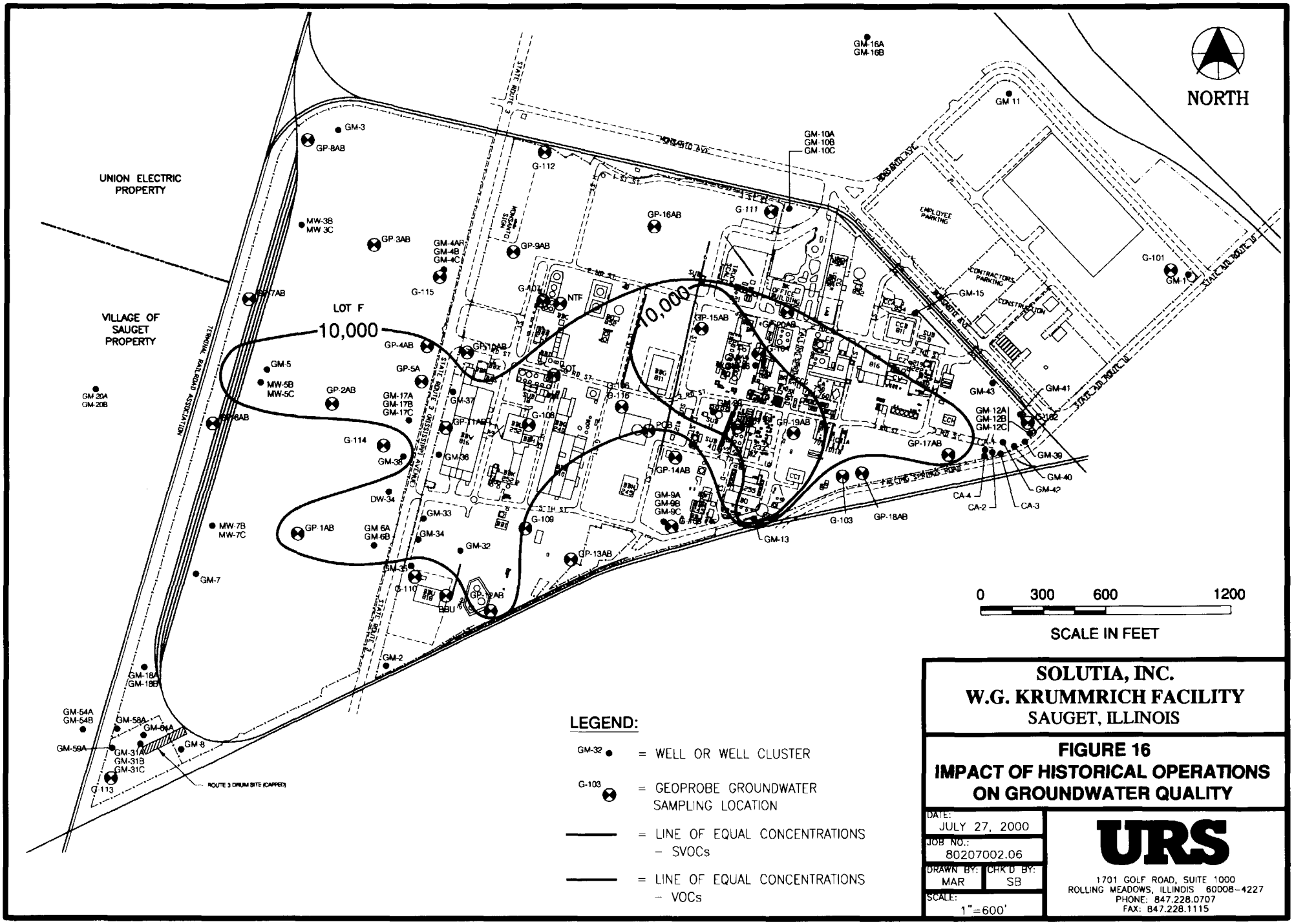

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 16
IMPACT OF HISTORICAL OPERATIONS ON GROUNDWATER QUALITY

DATE:	JULY 27, 2000
JOB NO.:	80207002.06
DRAWN BY:	MAR
CHK'D BY:	SB
SCALE:	1"=600'

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008-4227
PHONE: 847.228.0707
FAX: 847.228.1115

LEGEND:

■ = DOWNGRADIENT

▲ = UPSTREAM

● = DOWNSTREAM

Slay Terminals

POTW Discharge

Mississippi River

River Terminal

Site R

Property Line

USACE Flood Wall

Trade Waste incineration

Eagle Marine

Clayton Chemical

Site O

American Bottoms POTW

Union Electric

PChem POTW

Lot F

Ethyl Corporation

Facility Parking

Falling Springs Road

Mobil

Sterling

Property Line

Alton and Southern

Property Line

Cerro Copper

Terminal Railroad Association

NORTH

0 300 600 1200

APPROXIMATE SCALE IN FEET

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 17
SURFACE WATER SAMPLING PLAN
SAMPLING STATION LOCATION

DATE: JUNE 14, 2000	
JOB NO.: 80207002.06	
DRAWN BY: MAR	CHK'D BY: SB
SCALE: AS SHOWN	

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008-4227
PHONE: 847.228.0707
FAX: 847.228.1115

LEGEND:

▲ = PLUME BOUNDARY (N/S)

⊗ = PLUME BOUNDARY (DOWNGRADIENT)

■ = PLUME CORE

⊠ = BACKGROUND GROUNDWATER

▽ = WATER LEVEL PIEZOMETERS

Mississippi River

Slay Terminals

POTW Discharge

River Terminal

Site R

USACE Flood Wall

Property Line

Trade Waste incineration

Clayton Chemical

Union Electric

PChem POTW

Site O

Eagle Marine

American Bottoms POTW

Terminal Railroad Association

Property Line

Lot F

Ethyl Corporation

Facility Parking

Falling Springs Road

Mobil

Sterling

Property Line

Alton and Southern

Cerro Copper

NORTH

0 300 600 1200

APPROXIMATE SCALE IN FEET

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 18
GROUNDWATER SAMPLING PLAN
SAMPLING STATION LOCATION

DATE: JUNE 14, 2000	
JOB NO: 80207002.06	
DRAWN BY: MAR	CHK'D BY: SB
SCALE: AS SHOWN	

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008-4227
PHONE: 847.228.0707
FAX: 847.228.1115

LEGEND:

● = SURFACE and SUBSURFACE SOIL SAMPLES

Slay Terminals

POTW Discharge

Mississippi River

River Terminal

Site R

Property Line

USACE Flood Wall

Trade Waste incineration

Clayton Chemical

Site O

Eagle Marine

American Bottoms POTW

Union Electric

PChem POTW

Terminal Railroad Association

Property Line

Lot F

Ethyl Corporation

Facility Parking

Falling Springs Road

Mobil

Sterling

Property Line

Alton and Southern

Cerro Copper

NORTH

0 300 600 1200

APPROXIMATE SCALE IN FEET

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 19
SOIL SAMPLING PLAN
SAMPLING STATION LOCATIONS

DATE: JUNE 14, 2000	
JOB NO: 80207002.06	
DRAWN BY: MAR	CHK'D BY: SB
SCALE: AS SHOWN	

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008-4227
PHONE: 847.228.0707
FAX: 847.228.1115

SDMS US EPA REGION V
FORMAT- OVERSIZED - 5
IMAGERY INSERT FORM

The item(s) listed below are not available in SDMS. In order to view original document or document pages, contact the Superfund Records Center.

SITE NAME	**SAUGET AREA 2**		
DOC ID #	**155320**		
DESCRIPTION OF ITEM(S)	**MAP: FIGURE 20**		
REASON WHY UNSCANNABLE	**_X_OVERSIZED**	**OR**	**___ FORMAT**
DATE OF ITEM(S)	**08/30/00**		
NO. OF ITEM	**1**		
PHASE	**AR, SID**		
PRP	**RMD - SAUGET AREA 2**		
PHASE (AR DOCUMENTS ONLY)	**___ Remedial ___ Removal ___ Deletion Docket ___ AR ___ Original ____ Update # ___ Volume ____ of ___**		
COMMENT(S)			
Figure 20: Existing Soil Borings Locations			

= IEPA BORING LOCATIONS - MAY 1999

= CLOSURE BORING LOCATIONS - SEPT. 1998

= CLOSURE BORING LOCATIONS - JAN. 2000

URS
1701 GOLF ROAD, SUITE 1000
ROLLING MEADOWS, ILLINOIS 60008-4210
PHONE: 847.228.0700
FAX: 847.228.1816

SOLUTIA, INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

FIGURE 20
EXISTING SOIL BORINGS LOCATIONS

DESIGNED BY	KWL
DRAWN BY	MAR
CHECKED BY	SB
APPROVED BY	SB
COMPUTER FILE NAME:	80207002.06
DATE	8/30/00
DRAWING NO.	Solutia Borings
REVISION	C

Tables

Table 1: Historical Groundwater Data Summary, Solutia Inc., W.G. Krummrich Plant, Sauget, IL

Analyte	CASRN	Number Detected	Total Samples	Percent Freq. Detection	Minimum Detection Limit	Maximum Detection Limit	Minimum Conc.	Maximum Conc. (a)	Mean Conc.	Standard Deviation	Maximum Detected Conc.	Normal 95% UCL (b)	Geometric Mean
VOCs (µg/L)													
1,1,1-Trichloroethane	71556	24	557	4.3	1.00E+0	3.80E+5	5.00E-1	1.90E+5	5.20E+2	8.09E+3	2.72E+3	1.08E+3	1.14E+1
1,1,2,2-Tetrachloroethane	79345	2	557	0.4	1.00E+0	6.90E+5	5.00E-1	3.45E+5	9.07E+2	1.47E+4	1.17E+2	1.93E+3	1.67E+1
1,1-Dichloroethane	75343	17	557	3.1	8.00E-1	4.70E+5	4.00E-1	2.35E+5	6.36E+2	1.00E+4	2.88E+3	1.33E+3	1.32E+1
1,1-Dichloroethene	75354	13	557	2.3	1.00E+0	2.80E+5	5.00E-1	1.40E+5	3.89E+2	5.97E+3	3.73E+2	8.05E+2	8.56E+0
1,2-Dichloroethane	107062	15	557	2.7	1.00E+0	2.80E+5	5.00E-1	1.40E+5	4.39E+2	6.01E+3	1.65E+4	8.57E+2	8.92E+0
1,2-Dichloroethene (total)	540590	3	36	8.3	5.00E+0	1.00E+4	2.50E+0	5.00E+3	2.19E+2	8.53E+2	1.60E+2	4.53E+2	1.21E+1
1,2-Dichloroethene, trans-	156605	28	521	5.4	1.00E+0	1.60E+5	5.00E-1	8.00E+4	2.67E+2	3.56E+3	1.13E+4	5.24E+2	5.98E+0
1,3-Dichloropropene, trans-	10061026	1	557	0.2	1.00E+0	1.00E+6	5.00E-1	5.00E+5	1.30E+3	2.13E+4	7.20E+2	2.78E+3	2.22E+1
4-Methyl-2-pentanone	108101	13	284	4.6	1.00E+0	6.20E+4	5.00E-1	3.10E+4	5.68E+2	2.91E+3	7.47E+3	8.52E+2	3.36E+1
Acetone	67641	5	55	9.1	1.00E+1	1.00E+5	5.00E+0	5.00E+4	2.30E+3	7.98E+3	1.94E+4	4.07E+3	9.19E+1
Benzene	71432	312	556	56.1	5.00E-1	8.80E+3	2.50E-1	7.00E+5	1.06E+4	6.81E+4	7.00E+5	1.54E+4	6.78E+1
Bromoform	75252	1	557	0.2	1.00E+0	4.70E+5	5.00E-1	2.35E+5	6.29E+2	1.00E+4	6.23E+1	1.33E+3	1.26E+1
Bromomethane	74839	1	557	0.2	1.00E+0	1.00E+6	5.00E-1	5.00E+5	1.33E+3	2.13E+4	1.20E+2	2.82E+3	2.42E+1
Carbon Disulfide	75150	2	55	3.6	5.00E+0	5.00E+4	2.50E+0	2.50E+4	6.40E+2	3.42E+3	1.20E+1	1.40E+3	1.67E+1
Carbon Tetrachloride	56235	1	557	0.2	1.00E+0	2.80E+5	5.00E-1	1.40E+5	3.86E+2	5.97E+3	4.50E+0	8.02E+2	8.19E+0
Chlorobenzene	108907	398	556	71.6	6.00E-1	2.50E+3	3.00E-1	3.41E+5	7.41E+3	3.36E+4	3.41E+5	9.76E+3	1.75E+2
Chloroethane	75003	4	557	0.7	1.00E+0	1.00E+6	5.00E-1	5.00E+5	1.33E+3	2.13E+4	4.37E+2	2.81E+3	2.50E+1
Chloroform	67663	36	557	6.5	8.00E-2	1.60E+5	4.00E-2	8.00E+4	2.39E+2	3.42E+3	4.62E+2	4.77E+2	6.04E+0
Chloromethane	74873	5	557	0.9	1.00E+0	1.00E+6	5.00E-1	5.00E+5	1.33E+3	2.13E+4	4.66E+2	2.81E+3	2.42E+1
Ethylbenzene	100414	39	557	7.0	4.00E-1	7.20E+5	2.00E-1	3.60E+5	1.06E+3	1.54E+4	2.50E+4	2.14E+3	1.93E+1
Methyl isoamyl ketone	110123	2	263	0.8	1.00E+0	6.20E+4	5.00E-1	3.10E+4	4.65E+2	2.59E+3	5.13E+3	7.27E+2	2.94E+1
Methylene Chloride	75092	225	557	40.4	1.10E+0	2.80E+4	5.50E-1	3.14E+4	4.50E+2	2.31E+3	3.14E+4	6.11E+2	2.17E+1
Tetrachloroethene	127184	16	557	2.9	1.00E+0	4.10E+5	5.00E-1	2.05E+5	5.58E+2	8.73E+3	1.22E+3	1.17E+3	1.16E+1

Table 1: Historical Groundwater Data Summary, Solutia Inc., W.G. Krummrich Plant, Sauget, IL

Analyte	CASRN	Number Detected	Total Samples	Percent Freq. Detection	Minimum Detection Limit	Maximum Detection Limit	Minimum Conc.	Maximum Conc. (a)	Mean Conc.	Standard Deviation	Maximum Detected Conc.	Normal 95% UCL (b)	Geometric Mean
Toluene	108883	112	557	20.1	4.00E-1	6.00E+5	2.00E-1	3.00E+5	8.54E+2	1.28E+4	3.62E+3	1.74E+3	2.10E+1
Trichloroethene	79016	18	557	3.2	1.00E+0	1.90E+5	5.00E-1	9.50E+4	2.87E+2	4.06E+3	4.61E+3	5.70E+2	6.60E+0
Trichlorofluoromethane	75694	2	521	0.4	1.00E+0	1.00E+6	5.00E-1	5.00E+5	1.47E+3	2.22E+4	7.67E+4	3.07E+3	2.34E+1
Vinyl Chloride	75014	30	557	5.4	1.00E+0	1.00E+6	5.00E-1	5.00E+5	1.38E+3	2.13E+4	2.45E+4	2.86E+3	2.66E+1
Xylene, m-	108383	28	249	11.2	1.00E+0	5.00E+4	5.00E-1	5.09E+4	6.23E+2	4.36E+3	5.09E+4	1.08E+3	2.84E+1
Xylenes (total)	1330207	33	284	11.6	1.00E+0	5.00E+4	5.00E-1	3.58E+4	4.78E+2	3.18E+3	3.58E+4	7.88E+2	2.50E+1
SVOCs (µg/L)													
1,2,4-Trichlorobenzene	120821	23	342	6.7	1.00E+0	2.00E+3	5.00E-1	2.17E+3	3.55E+1	1.55E+2	2.17E+3	4.93E+1	3.71E+0
1,2-Dichlorobenzene	95501	191	342	55.8	1.00E+0	1.10E+3	5.00E-1	9.81E+3	4.87E+2	1.43E+3	9.81E+3	6.15E+2	2.11E+1
1,3-Dichlorobenzene	541731	55	342	16.1	1.00E+0	1.90E+3	5.00E-1	9.50E+2	3.17E+1	9.93E+1	7.76E+2	4.05E+1	4.77E+0
1,4-Dichlorobenzene	106467	156	342	45.6	1.00E+0	4.50E+3	5.00E-1	2.26E+3	1.82E+2	3.70E+2	2.26E+3	2.15E+2	2.20E+1
2,4,6-Trichlorophenol	88062	82	355	23.1	1.00E+0	2.80E+3	5.00E-1	2.59E+4	3.57E+2	1.67E+3	2.59E+4	5.02E+2	8.99E+0
2,4-Dichlorophenol	120832	103	355	29.0	1.00E+0	2.80E+3	5.00E-1	1.82E+5	1.33E+3	1.00E+4	1.82E+5	2.21E+3	1.08E+1
2,4-Dimethylphenol	105679	39	355	11.0	1.00E+0	2.80E+3	5.00E-1	2.04E+3	5.33E+1	2.01E+2	2.04E+3	7.08E+1	4.80E+0
2,4-Dinitrochlorobenzene	97007	24	272	8.8	1.00E+0	1.00E+4	5.00E-1	4.84E+4	7.85E+2	4.49E+3	4.84E+4	1.23E+3	2.20E+1
2,4-Dinitrophenol	51285	15	355	4.2	1.00E+0	4.30E+4	5.00E-1	2.62E+4	6.11E+2	2.72E+3	2.62E+4	8.48E+2	4.15E+1
2-Chloroaniline	95512	46	73	63.0	1.00E+1	5.00E+2	5.00E+0	3.29E+5	2.24E+4	5.58E+4	3.29E+5	3.31E+4	2.55E+2
2-Chloronaphthalene	91587	1	342	0.3	1.00E+0	1.90E+3	5.00E-1	9.50E+2	2.74E+1	1.03E+2	9.40E+2	3.66E+1	3.17E+0
2-Chlorophenol	95578	172	355	48.5	1.00E+0	3.40E+3	5.00E-1	1.16E+5	7.88E+2	6.31E+3	1.16E+5	1.34E+3	1.79E+1
2-Nitroaniline	88744	10	281	3.6	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.51E+2	5.06E+2	1.16E+3	2.01E+2	1.99E+1
2-Nitrobiphenyl	86000	8	136	5.9	1.00E+0	5.70E+3	5.00E-1	2.85E+3	1.01E+2	2.87E+2	2.93E+2	1.41E+2	1.47E+1
2-Nitrophenol	88755	16	355	4.5	1.00E+0	3.70E+3	5.00E-1	1.85E+3	4.34E+1	1.75E+2	7.29E+2	5.87E+1	5.08E+0
3,3'-Dichlorobenzidine	91941	1	342	0.3	1.00E+0	1.70E+4	5.00E-1	8.50E+3	1.95E+2	7.65E+2	4.70E+1	2.63E+2	1.92E+1
3-Chloroaniline	108429	22	70	31.4	1.00E+1	2.50E+3	5.00E+0	5.72E+4	5.85E+3	1.30E+4	5.72E+4	8.42E+3	6.88E+1
3-Nitrochlorobenzene	121733	7	50	14.0	1.00E+1	2.00E+3	5.00E+0	4.61E+5	1.23E+4	6.68E+4	4.61E+5	2.78E+4	3.02E+1

Table 1: Hi(ical Groundwater Data Summary, Solutia Inc., W.G(ummrich Plant, Sauget, IL

Analyte	CASRN	Number Detected	Total Samples	Percent Freq. Detection	Minimum Detection Limit	Maximum Detection Limit	Minimum Conc.	Maximum Conc. (a)	Mean Conc.	Standard Deviation	Maximum Detected Conc.	Normal 95% UCL (b)	Geometric Mean
4,6-Dinitro-2-methylphenol	534521	1	355	0.3	1.00E+0	2.40E+4	5.00E-1	1.20E+4	2.36E+2	1.11E+3	2.80E+1	3.33E+2	2.27E+1
4-Chloro-3-methylphenol	59507	4	355	1.1	1.00E+0	3.10E+3	5.00E-1	1.55E+3	3.06E+1	1.40E+2	7.10E+0	4.28E+1	3.87E+0
4-Chloroaniline	106478	43	85	50.6	1.00E+1	4.00E+2	5.00E+0	1.05E+5	1.05E+4	2.17E+4	1.05E+5	1.43E+4	1.88E+2
4-Chlorophenol	106489	77	254	30.3	1.00E+0	1.00E+4	5.00E-1	2.86E+4	1.22E+3	3.50E+3	2.86E+4	1.58E+3	3.35E+1
4-Methylphenol	106445	1	16	6.3	1.00E+1	5.10E+3	5.00E+0	4.70E+4	3.10E+3	1.17E+4	4.70E+4	7.93E+3	1.54E+1
4-Nitroaniline	100016	5	287	1.7	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.53E+2	5.02E+2	3.46E+2	2.02E+2	2.01E+1
4-Nitrodiphenylamine	836306	5	272	1.8	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.49E+2	5.13E+2	6.27E+2	2.00E+2	1.69E+1
4-Nitrophenol	100027	20	355	5.6	1.00E+0	2.40E+3	5.00E-1	1.20E+3	4.05E+1	1.22E+2	3.72E+2	5.11E+1	5.06E+0
Acenaphthene	83329	3	342	0.9	1.00E+0	2.00E+3	5.00E-1	1.00E+3	2.73E+1	1.03E+2	2.20E+0	3.64E+1	3.16E+0
Aniline	62533	55	120	45.8	1.00E+1	1.00E+4	5.00E+0	6.85E+5	3.46E+4	1.08E+5	6.85E+5	5.07E+4	2.82E+2
Anthracene	120127	1	342	0.3	1.00E+0	1.90E+3	5.00E-1	9.50E+2	2.40E+1	8.78E+1	1.06E+1	3.18E+1	3.12E+0
Benzo[a]pyrene	50328	2	342	0.6	1.00E+0	2.60E+3	5.00E-1	1.30E+3	3.12E+1	1.17E+2	6.33E+0	4.15E+1	4.01E+0
Benzo[k]fluoranthene	207089	1	342	0.3	1.00E+0	2.60E+3	5.00E-1	1.30E+3	3.30E+1	1.18E+2	9.51E+0	4.35E+1	4.31E+0
Benzoic Acid	65850	2	7	28.6	1.00E+1	5.10E+3	5.00E+0	5.08E+4	7.87E+3	1.90E+4	5.08E+4	1.97E+4	1.08E+2
Benzyl alcohol	100516	2	23	8.7	1.00E+1	5.10E+3	5.00E+0	2.55E+3	2.24E+2	6.39E+2	1.83E+3	4.43E+2	1.23E+1
Bis(2-chloroethoxy)methane	111911	1	342	0.3	1.00E+0	5.40E+3	5.00E-1	2.70E+3	6.28E+1	2.45E+2	5.40E+0	8.46E+1	6.51E+0
Bis(2-chloroethyl)ether	111444	1	342	0.3	1.00E+0	5.80E+3	5.00E-1	2.90E+3	6.73E+1	2.64E+2	5.90E+0	9.07E+1	6.85E+0
Bis(2-chloroisopropyl)ether	108601	1	342	0.3	1.00E+0	5.80E+3	5.00E-1	2.90E+3	6.85E+1	2.67E+2	5.90E+0	9.22E+1	6.79E+0
Bis(2-ethylhexyl)phthalate	117817	67	342	19.6	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.21E+2	4.57E+2	4.34E+2	1.61E+2	1.42E+1
Butylbenzyl phthalate	85687	5	342	1.5	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.14E+2	4.58E+2	1.40E+1	1.54E+2	1.09E+1
Chloronitrobenzene, o-	88733	92	282	32.6	1.00E+0	2.50E+3	5.00E-1	4.63E+5	1.66E+4	4.97E+4	4.63E+5	2.14E+4	7.24E+1
Chloronitrobenzene, p-	100005	90	280	32.1	1.00E+0	2.50E+3	5.00E-1	1.85E+5	7.39E+3	2.08E+4	1.85E+5	9.43E+3	6.54E+1
Chrysene	218019	2	342	0.6	1.00E+0	2.60E+3	5.00E-1	1.30E+3	3.11E+1	1.17E+2	8.73E+0	4.15E+1	3.97E+0
Di-n-butyl phthalate	84742	45	342	13.2	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.15E+2	4.59E+2	3.41E+1	1.56E+2	1.17E+1
Di-n-octyl phthalate	117840	2	342	0.6	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.16E+2	4.60E+2	5.04E+1	1.57E+2	1.04E+1

Table 1: Historical Groundwater Data Summary, Solutia Inc., W.G. Krummrich Plant, Sauget, IL

Analyte	CASRN	Number Detected	Total Samples	Percent Freq. Detection	Minimum Detection Limit	Maximum Detection Limit	Minimum Conc.	Maximum Conc. (a)	Mean Conc.	Standard Deviation	Maximum Detected Conc.	Normal 95% UCL (b)	Geometric Mean
Dibenzo[a,h]anthracene	53703	1	342	0.3	1.00E+0	1.00E+4	5.00E-1	5.00E+3	8.48E+1	3.65E+2	1.10E+1	1.17E+2	7.30E+0
Diethyl phthalate	84662	16	342	4.7	1.00E+0	1.00E+4	5.00E-1	5.00E+3	1.16E+2	4.60E+2	3.00E+0	1.57E+2	1.05E+1
Fluoranthene	206440	3	342	0.9	1.00E+0	2.20E+3	5.00E-1	1.10E+3	2.72E+1	1.01E+2	1.57E+1	3.62E+1	3.56E+0
Hexachlorobutadiene	87683	1	342	0.3	9.00E-1	2.00E+3	4.50E-1	1.00E+3	1.70E+1	6.81E+1	9.20E+0	2.30E+1	2.29E+0
Hexachlorocyclopentadiene	77474	1	342	0.3	9.00E-1	1.00E+4	4.50E-1	1.00E+4	1.28E+2	6.53E+2	1.00E+4	1.86E+2	1.07E+1
Indeno[1,2,3-cd]pyrene	193395	1	342	0.3	1.00E+0	4.80E+3	5.00E-1	2.40E+3	5.15E+1	2.01E+2	1.10E+1	6.93E+1	5.68E+0
n-Nitrosodiphenylamine	86306	17	342	5.0	1.00E+0	1.90E+3	5.00E-1	1.90E+3	3.01E+1	1.27E+2	1.90E+3	4.14E+1	3.93E+0
Naphthalene	91203	33	342	9.6	1.00E+0	1.60E+3	5.00E-1	8.72E+2	2.36E+1	8.70E+1	8.72E+2	3.13E+1	3.10E+0
Nitrobenzene	98953	64	342	18.7	1.00E+0	2.00E+3	5.00E-1	1.29E+4	1.63E+2	8.78E+2	1.29E+4	2.41E+2	5.65E+0
Pentachlorophenol	87865	34	355	9.6	1.00E+0	3.70E+3	5.00E-1	1.85E+3	5.22E+1	1.91E+2	1.27E+3	6.89E+1	6.34E+0
Phenanthrene	85018	2	342	0.6	1.00E+0	5.50E+3	5.00E-1	2.75E+3	6.32E+1	2.50E+2	5.60E+0	8.54E+1	6.56E+0
Phenol	108952	149	355	42.0	1.00E+0	1.50E+3	5.00E-1	5.86E+5	7.57E+3	4.81E+4	5.86E+5	1.18E+4	1.49E+1
Pyrene	129000	4	342	1.2	1.00E+0	1.90E+3	5.00E-1	9.50E+2	2.41E+1	8.78E+1	1.39E+1	3.19E+1	3.21E+0

Footnotes:
All concentrations are in µg/L.
a) The maximum concentration is either one-half of an elevated detection limit or the maximum detected concentration.
b) The 95 percent upper confidence limit (UCL) assumes that data are normally distributed.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GM-2	GM-3	GM-4AR	GM-5	GM-6A	GM-7	GM-8
Date Sampled:	02/03/00	01/27/00	01/26/00	01/28/00	01/26/00	01/25/00	01/31/00
COMPOUND NAME							
1,1,1-Trichloroethane	5<	5<	10<	5<	2000<	5<	5<
1,1-Dichloroethane	5<	5<	10<	5<	2000<	5<	5<
2-Butanone (MEK)	25<	25<	50<	25<	10000<	25<	25<
4-Methyl-2-pentanone (MIBK)	25<	25<	50<	25<	10000<	25<	25<
Acetone	50<	50<	100<	50<	20000<	50<	50<
Benzene	**26**	5<	10<	5<	2000<	5<	5<
Chlorobenzene	**37**	5<	**200**	5<	**56000**	5<	5<
Chloroform	5<	5<	10<	5<	2000<	5<	5<
Chloromethane	**12**	10<	20<	10<	4000<	10<	10<
Cis/Trans-1,2-Dichloroethene	**24**	5<	10<	5<	2000<	5<	5<
Ethylbenzene	5<	5<	10<	5<	2000<	5<	5<
Toluene	5<	5<	10<	5<	2000<	5<	5<
Xylenes, Total	10<	10<	20<	10<	4000<	10<	10<
Total VOCs	99	0	200	0	56000	0	0

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold**.

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GM-9A	GM-13	GM-14	GM-15	GM-17A	GM-18A	GM-29	GM-31A
Date Sampled:	02/01/00	02/01/00	02/03/00	02/02/00	01/31/00	01/28/00	02/03/00	01/28/00
COMPOUND NAME								
1,1,1-Trichloroethane	5<	2500<	12000<	5<	25000<	25<	10<	5<
1,1-Dichloroethane	5<	2500<	12000<	5<	25000<	25<	10<	5<
2-Butanone (MEK)	25<	12000<	62000<	25<	120000<	120<	50<	25<
4-Methyl-2-pentanone (MIBK)	25<	12000<	62000<	25<	120000<	120<	50<	25<
Acetone	50<	25000<	120000<	50<	250000<	250<	100<	50<
Benzene	5<	2500<	12000<	**34**	**540000**	**660**	**260**	**14**
Chlorobenzene	**11**	2500<	**350000**	**130**	**230000**	**130**	10<	**17**
Chloroform	5<	2500<	12000<	**6.4**	25000<	25<	10<	5<
Chloromethane	10<	5000<	25000<	10<	50000<	50<	20<	10<
Cis/Trans-1,2-Dichloroethene	5<	2500<	12000<	5<	25000<	25<	10<	5<
Ethylbenzene	5<	**29000**	12000<	5<	25000<	25<	10<	5<
Toluene	5<	2500<	12000<	5<	25000<	25<	10<	5<
Xylenes, Total	10<	**150000**	25000<	10<	50000<	50<	20<	10<
Total VOCs	11	179000	350000	170.4	770000	790	260	31

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold**.

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GM-32	GM-33	GM-34	GM-35	GM-36	GM-37	GM-38
Date Sampled:	02/02/00	02/01/00	02/01/00	02/01/00	02/01/00	02/01/00	01/25/00
COMPOUND NAME							
1,1,1-Trichloroethane	10000<	50000<	50000<	250<	10000<	5<	100<
1,1-Dichloroethane	10000<	50000<	50000<	250<	10000<	5<	100<
2-Butanone (MEK)	50000<	250000<	250000<	1200<	50000<	25<	500<
4-Methyl-2-pentanone (MIBK)	50000<	250000<	250000<	1200<	50000<	25<	500<
Acetone	100000<	500000<	500000<	2500<	100000<	50<	1000<
Benzene	**300000**	**1600000**	**1200000**	**5500**	**270000**	5<	**2200**
Chlorobenzene	**26000**	50000<	50000<	250<	10000<	5<	**1800**
Chloroform	10000<	50000<	50000<	250<	10000<	5<	100<
Chloromethane	20000<	100000<	100000<	500<	20000<	10<	200<
Cis/Trans-1,2-Dichloroethene	10000<	50000<	50000<	250<	10000<	5<	100<
Ethylbenzene	10000<	50000<	50000<	250<	10000<	5<	100<
Toluene	10000<	50000<	50000<	250<	10000<	5<	100<
Xylenes, Total	20000<	100000<	100000<	500<	20000<	10<	200<
Total VOCs	326000	1600000	1200000	5500	270000	0	4000

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / COMPOUND NAME	GM-54A 02/01/00	GM-59A 01/31/00	CA-1 02/02/00	CA-2 02/02/00	CA-3 02/02/00	DUP-3 02/02/00 (Dup of CA-3)	CA-4 02/02/00
1,1,1-Trichloroethane	5<	5<	NA	NA	NA	20<	NA
1,1-Dichloroethane	5<	5<	NA	NA	NA	20<	NA
2-Butanone (MEK)	25<	25<	NA	NA	NA	100<	NA
4-Methyl-2-pentanone (MIBK)	25<	25<	NA	NA	NA	100<	NA
Acetone	50<	50<	NA	NA	NA	200<	NA
Benzene	**130**	**5.7**	**870**	**2500**	**120**	**91**	**120**
Chlorobenzene	**71**	**20**	**2400**	**610**	**550**	**430**	**2100**
Chloroform	5<	5<	NA	NA	NA	20<	NA
Chloromethane	10<	10<	NA	NA	NA	40<	NA
Cis/Trans-1,2-Dichloroethene	5<	5<	NA	NA	NA	20<	NA
Ethylbenzene	5<	5<	NA	NA	NA	20<	NA
Toluene	5<	5<	NA	NA	NA	20<	NA
Xylenes, Total	10<	10<	NA	NA	NA	40<	NA
Total VOCs	201	25.7	3270	3110	670	521	2220

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	DW-34	GP1-A	GP2-A	GP-3A	GP-4A	GP-5A	GP-6A
Date Sampled:	01/26/00	01/25/00	01/25/00	01/26/00	01/26/00	01/26/00	01/26/00
COMPOUND NAME							
1,1,1-Trichloroethane	25000<	5<	**560**	5<	25000<	10<	5<
1,1-Dichloroethane	25000<	5<	**330**	5<	25000<	10<	5<
2-Butanone (MEK)	120000<	25<	500<	25<	120000<	50<	25<
4-Methyl-2-pentanone (MIBK)	120000<	**74**	500<	25<	120000<	50<	25<
Acetone	250000<	**60**	1000<	50<	250000<	100<	50<
Benzene	**840000**	5<	**4100**	5<	**760000**	**120**	5<
Chlorobenzene	25000<	**140**	**1700**	5<	**220000**	**390**	**11**
Chloroform	25000<	5<	100<	5<	25000<	10<	5<
Chloromethane	50000<	10<	200<	10<	50000<	20<	10<
Cis/Trans-1,2-Dichloroethene	25000<	5<	100<	5<	25000<	10<	5<
Ethylbenzene	25000<	5<	100<	5<	25000<	10<	5<
Toluene	25000<	5<	100<	5<	25000<	10<	5<
Xylenes, Total	50000<	10<	200<	10<	50000<	20<	10<
Total VOCs	840000	274	6690	0	980000	510	11

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GP-6A	GP-7A	GP-8A	GP-9A	GP-10A	GP-11A	GP-12A
Date Sampled:	01/27/00	01/27/00	01/27/00	01/28/00	01/28/00	01/28/00	01/31/00
COMPOUND NAME							
1,1,1-Trichloroethane	5<	5<	5<	250<	5<	100<	1200<
1,1-Dichloroethane	5<	5<	5<	250<	5<	100<	1200<
2-Butanone (MEK)	25<	25<	25<	1200<	25<	500<	6200<
4-Methyl-2-pentanone (MIBK)	25<	25<	25<	1200<	25<	500<	6200<
Acetone	50<	50<	50<	2500<	50<	1000<	12000<
Benzene	**18**	5<	5<	250<	5<	**1800**	1200<
Chlorobenzene	**10**	5<	5<	**5300**	5<	**2300**	**40000**
Chloroform	5<	5<	5<	250<	5<	100<	1200<
Chloromethane	10<	10<	10<	500<	10<	200<	2500<
Cis/Trans-1,2-Dichloroethene	5<	5<	5<	250<	5<	100<	1200<
Ethylbenzene	5<	5<	5<	250<	5<	100<	1200<
Toluene	5<	5<	5<	250<	5<	100<	1200<
Xylenes, Total	10<	10<	10<	500<	10<	200<	2500<
Total VOCs	28	0	0	5300	0	4100	40000

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GP-13A	GP-14A	GP-15A	GP-16A	GP-17A	GP-18A	GP-19A	GP-20A
Date Sampled:	01/31/00	02/01/00	02/01/00	02/01/00	02/02/00	02/03/00	02/03/00	02/03/00
COMPOUND NAME								
1,1,1-Trichloroethane	50<	100<	250<	5<	5<	10<	2500<	1000<
1,1-Dichloroethane	50<	100<	250<	5<	5<	10<	2500<	1000<
2-Butanone (MEK)	250<	500<	1200<	**64**	25<	50<	12000<	5000<
4-Methyl-2-pentanone (MIBK)	250<	500<	1200<	25<	25<	50<	12000<	5000<
Acetone	500<	1000<	2500<	**83**	50<	100<	25000<	10000<
Benzene	**1400**	**440**	250<	5<	**41**	**330**	2500<	**1100**
Chlorobenzene	**220**	**2500**	**7300**	**33**	5<	**22**	2500<	**26000**
Chloroform	50<	100<	250<	5<	5<	10<	2500<	1000<
Chloromethane	100<	200<	500<	10<	10<	20<	5000<	2000<
Cis/Trans-1,2-Dichloroethene	50<	100<	250<	5<	5<	10<	2500<	1000<
Ethylbenzene	50<	100<	250<	**37**	5<	10<	2500<	1000<
Toluene	50<	100<	250<	5<	5<	10<	**71000**	1000<
Xylenes, Total	100<	200<	500<	10<	10<	20<	5000<	2000<
Total VOCs	1620	2940	7300	217	41	352	71000	27100

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, RCRA Closure Data

Sample ID: / Date Sampled: / COMPOUND NAME	BBU-B52 01/00	BBU-B53 01/00	BBU-B54 01/00	BBU-B55 01/00	BBU-B56 01/00	BBU-B57 01/00	BBU-B58 01/00
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND
Benzene	**220,000**	**130**	**32**	**3800**	**13000**	**86000**	**1100000D**
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	**8700**	**12**	**36**	ND	ND	**1800J**	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	**8.3J**	ND	ND	ND	ND	ND
Cis/Trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	ND	ND	ND	ND	ND	ND	ND
Total VOCs	228,700	150.3	68	3800	13000	87800	1100000

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

J = Indicates an estimated value.

D = Indicates the sample was diluted due to sample matrix interference.

B = Analyte found in the sample and in the associated blank.

E = Indicates that the concentration of the compound exceeded calibration range of the instrumentation.

Concentrations qualifed with a "B" are considered sample contamination and are not included in totals.

RCRA - Resource Conservation and Recovery Act

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, RCRA Closure Data

Sample ID:	BBU-B59	PCB-B60	SOT-B64	SOT-B65	SOT-B66	SCT-B67	SCT-B68	SCT-B69
Date Sampled:	01/00	01/00	01/00	01/00	01/00	01/00	01/00	01/00
COMPOUND NAME								
2-Butanone (MEK)	ND	ND	ND	**420**	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	**660**	**16J**	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	**120000**	ND	**1700**	**1300**	**100**	**51**	ND	**32000**
Bromodichloromethane	ND	ND	ND	ND	ND	**4J**	ND	ND
Carbon disulfide	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	**28J**	**95**	**24**	**30**	**150000**	**310000E**
Chloroform	ND	ND	ND	ND	ND	**12**	ND	ND
Chloromethane	ND	ND	ND	ND	ND	**24**	ND	ND
Cis/Trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	**160**	**120**	**25**	ND	ND	ND
Toluene	ND	ND	**56**	**81**	ND	ND	ND	ND
Xylenes, Total	ND	ND	**1600**	**840**	**400**	ND	ND	ND
Total VOCs	120000	0	3544	3516	565	121	150000	342,000

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

J = Indicates an estimated value.

D = Indicates the sample was diluted due to sample matrix interference.

B = Analyte found in the sample and in the associated blank.

E = Indicates that the concentration of the compound exceeded calibration range of the instrumentation.

Concentrations qualifed with a "B" are considered sample contamination and are not included in totals.

RCRA - Resource Conservation and Recovery Act

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Shallow Zone, RCRA Closure Data

Sample ID: / Date Sampled: / COMPOUND NAME	SCT-B71 01/00	NTF-B72 01/00	NTF-B74 01/00	NTF-B75 01/00	NTF-B76 01/00	NTF-B77 01/00	NTF-B78 01/00
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND
Benzene	**45000**	**22**	ND	ND	**130000**	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ND	ND	ND	**3.2J**	ND	**3.2J**	ND
Chlorobenzene	**170000E**	**230**	**13000**	**40**	ND	**40**	**360**
Chloroform	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	**15J**	ND	ND	ND	ND	ND
Cis/Trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total	ND	ND	ND	ND	ND	ND	ND
Total VOCs	215,000	267	13000	43.2	130000	43.2	360

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

J = Indicates an estimated value.

D = Indicates the sample was diluted due to sample matrix interference.

B = Analyte found in the sample and in the associated blank.

E = Indicates that the concentration of the compound exceeded calibration range of the instrumentation.

Concentrations qualifed with a "B" are considered sample contamination and are not included in totals.

RCRA - Resource Conservation and Recovery Act

Table 2. Groundwater Data Summary - Volatile Organic Compounds

May 1999 - Shallow Zone, IEPA CERCLA Data

COMPOUND	Sample ID: / Date Sampled:	G101 5/10/99	G102 5/10/99	G103 5/10/99	G104 5/11/99	G105 5/11/99	G106 5/11/99	G107 5/12/99
1,1,1-Trichloroethane		ND	ND	ND	ND	**2J**	ND	ND
1,2-Dichloroethene		ND	ND	**25**	ND	ND	ND	ND
Acetone		ND	**36**	ND	ND	ND	ND	ND
Benzene		ND	**420**	**3J**	ND	ND	ND	ND
Chlorobenzene		ND	**1600**	**14**	**2500**	**5J**	**2300**	**80**
Chloroform		ND	19JB	ND	ND	ND	ND	ND
Methylene Chloride		5JB	ND	3JB	64JB	4JB	71JB	**30**
Toluene		ND	ND	ND	ND	ND	ND	**20**
Vinyl Chloride		ND	ND	ND	ND	ND	ND	ND
Xylenes, Total		ND	ND	ND	ND	ND	ND	**11**
Total VOCs		0	2056	42	2500	7	2300	141

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND - Not detected above the method detection limit.

J = Indicates an estimated value.

D = Indicates the sample was diluted due to sample matrix interference.

B = Analyte found in the sample and in the associated blank.

Concentrations qualifed with a "B" are considered sample contamination and are not included in totals.

IEPA - Illinois Environmental Protection Agency

CERCLA- Comprehensive Environmental Response, Compensation, and Liability Act

Table 2. Groundwater Data Summary - Volatile Organic Compounds

May 1999 - Shallow Zone, IEPA CERCLA Data

Sample ID:	G108	G109	G110	G111	G112	G113	G114	G115	G116
Date Sampled:	5/11/99	5/12/99	5/13/99	5/12/99	5/13/99	5/13/99	5/12/99	5/12/99	5/11/99
COMPOUND									
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	**16**	**6J**	**26000**	ND	**14**	**1J**	**2800J**	ND	ND
Chlorobenzene	**9J**	**590**	**400J**	**2J**	**8J**	ND	**110000**	**3J**	**1800**
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	**160**	ND	**32**	**5J**	**4J**	ND	ND	**680**
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	**3J**	ND	ND	ND
Xylenes, Total	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs	25	756	26400	34	27	8	112,800	3	2480

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND - Not detected above the method detection limit.

J = Indicates an estimated value.

D = Indicates the sample was diluted due to sample matrix interference.

B = Analyte found in the sample and in the associated blank.

Concentrations qualifed with a "B" are considered sample contamination and are not included in totals.

IEPA - Illinois Environmental Protection Agency

CERCLA- Comprehensive Environmental Response, Compensation, and Liability Act

Table 2. Groundwater Data Summary - Volatile Organic Compounds

May 2000 - Shallow Zone, Plant-Wide Data

Sample ID: / Sample Date:	B-22A 5/10/00	B-24A 5/11/00	B-25A 5/10/00	B-26A 5/11/00	B-28A 5/10/00	B-29A 5/10/00	EE-24 5/9/00
1,1-Dichloroethane	200<	1200<	500<	100<	5<	100<	5<
1,2-Dichloroethane	200<	1200<	**14000**	100<	5<	100<	5<
2-Butanone (MEK)	1000<	6200<	2500<	**620**	25<	500<	25<
Acetone	2000<	**69000**	**10000**	1000<	50<	**1100**	50<
Benzene	**1000**	**1600**	500<	**460**	5<	100<	5<
Chlorobenzene	**6100**	**4000**	**14000**	**2800**	**110**	**2400**	**12**
Cis/Trans-1,2-Dichloroethene	200<	250<	500<	100<	5<	100<	5<
Tetrachloroethene	200<	1200<	500<	100<	5<	100<	5<
Toluene	**240**	1200<	500<	100<	5<	**460**	5<
Trichloroethene	200<	1200<	500<	100<	5<	100<	5<
Total VOCs	7340	74600	38000	3880	110	3960	12

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

May 2000 - Shallow Zone, Plant-Wide Data

Sample ID: / Sample Date:	GM-19A 5/9/00	GM-23A 5/9/00	GM-54A 5/8/00	GM-60A 5/8/00	GM-18A 5/8/00
1,1-Dichloroethane	**7.9**	5<	5<	20<	5<
1,2-Dichloroethane	5<	5<	5<	20<	5<
2-Butanone (MEK)	25<	25<	25<	100<	25<
Acetone	50<	50<	50<	200<	50<
Benzene	**18**	5<	5<	20<	5<
Chlorobenzene	**18**	5<	5<	**490**	5<
Cis/Trans-1,2-Dichloroethene	**15**	5<	1<	20<	5<
Tetrachloroethene	**8.7**	5<	5<	20<	5<
Toluene	5<	5<	5<	20<	5<
Trichloroethene	**6.9**	5<	5<	20<	5<
Total VOCs	75	0	0	490	0

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / Compound Name	MW-3B 01/27/00	GM-4B 01/26/00	MW-5B 01/28/00	GM-6B 01/26/00	DUP-1 01/26/00 (Dup of GM-6B)	MW-7B 01/25/00	GM-9B 02/01/00
1,1-Dichloroethane	1000<	25<	10000<	2000<	1200<	**16**	5<
1,1-Dichloroethene	1000<	25<	10000<	2000<	1200<	5<	5<
2-Butanone (MEK)	5000<	120<	50000<	10000<	6200<	25<	25<
4-Methyl-2-pentanone (MIBK)	5000<	120<	50000<	10000<	6200<	25<	25<
Acetone	10000<	250<	100000<	20000<	12000<	50<	50<
Benzene	**32000**	25<	**370000**	**4800**	**4800**	**20**	**54**
Carbon disulfide	1000<	25<	10000<	2000<	1200<	5<	5<
Chlorobenzene	**5500**	**430**	**19000**	**41000**	**47000**	**61**	**79**
Chloroform	1000<	25<	10000<	2000<	1200<	**27**	5<
Cis/Trans-1,2-Dichloroethene	1000<	25<	10000<	2000<	1200<	**68**	5<
Ethylbenzene	1000<	25<	10000<	2000<	1200<	5<	5<
Toluene	1000<	25<	10000<	2000<	1200<	5<	5<
Vinyl chloride	2000<	50<	20000<	4000<	2500<	10<	10<
Total VOCs	37500	430	389000	45800	51800	192	133

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Dupliciate analysis

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / Compound Name	GM-10B 02/02/00	GM-12B 02/02/00	GM-17B 01/31/00	GM-18B 01/28/00	GM-20B 02/01/00	DUP-2 02/01/00 (Dup of GM-20B)	GM-31B 01/28/00
1,1-Dichloroethane	100<	250<	10<	25<	**81**	**74**	5<
1,1-Dichloroethene	100<	250<	10<	25<	**33**	**28**	5<
2-Butanone (MEK)	500<	1200<	50<	120<	120<	120<	25<
4-Methyl-2-pentanone (MIBK)	500<	1200<	50<	120<	120<	120<	25<
Acetone	1000<	2500<	100<	250<	250<	250<	50<
Benzene	**280**	**7200**	**38**	**330**	**110**	**280**	**11**
Carbon disulfide	100<	250<	10<	25<	25<	25<	5<
Chlorobenzene	**2200**	250<	**390**	**440**	**760**	**840**	**15**
Chloroform	100<	250<	10<	25<	25<	25<	5<
Cis/Trans-1,2-Dichloroethene	100<	250<	10<	25<	**400**	**360**	5<
Ethylbenzene	100<	250<	10<	25<	25<	25<	5<
Toluene	100<	250<	10<	25<	25<	25<	5<
Vinyl chloride	200<	500<	20<	50<	**62**	**51**	10<
Total VOCs	2480	7200	428	770	1446	1633	26

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Dupliciate analysis

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation:	GM-54B	GP-1B	GP-2B	GP-3B	GP-4B	GP-6B	GP-7B
Date Sampled:	02/01/00	01/25/00	01/25/00	01/26/00	01/26/00	01/27/00	01/27/00
Compound Name							
1,1-Dichloroethane	5<	500<	12000<	12000<	12000<	25<	5<
1,1-Dichloroethene	5<	500<	12000<	12000<	12000<	25<	5<
2-Butanone (MEK)	25<	2500<	62000<	62000<	62000<	120<	25<
4-Methyl-2-pentanone (MIBK)	25<	2500<	62000<	62000<	62000<	120<	25<
Acetone	50<	5000<	120000<	120000<	120000<	250<	50<
Benzene	**23**	500<	**390000**	**510000**	**180000**	**54**	**42**
Carbon disulfide	5<	500<	12000<	12000<	12000<	**29**	**5.8**
Chlorobenzene	**26**	**18000**	**17000**	**170000**	**290000**	**570**	**150**
Chloroform	5<	500<	12000<	12000<	12000<	25<	5<
Cis/Trans-1,2-Dichloroethene	5<	500<	12000<	12000<	12000<	25<	5<
Ethylbenzene	5<	500<	12000<	12000<	12000<	25<	5<
Toluene	5<	500<	12000<	12000<	12000<	25<	5<
Vinyl chloride	10<	1000<	25000<	25000<	25000<	50<	10<
Total VOCs	49	18000	407000	680000	470000	653	197.8

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Dupliciate analysis

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation:	GP-8B	GP-9B	GP-10B	GP-11B	GP-12B	GP-13B	GP-14B
Date Sampled:	01/27/00	01/28/00	01/28/00	01/28/00	01/31/00	01/31/00	02/01/00
Compound Name							
1,1-Dichloroethane	2500<	120<	10<	200<	**130**	**30**	20<
1,1-Dichloroethene	2500<	120<	10<	200<	50<	5<	20<
2-Butanone (MEK)	12000<	620<	50<	1000<	250<	25<	100<
4-Methyl-2-pentanone (MIBK)	12000<	620<	50<	1000<	250<	25<	100<
Acetone	25000<	1200<	100<	2000<	500<	50<	200<
Benzene	**79000**	**4900**	**130**	**6200**	50<	**110**	**130**
Carbon disulfide	2500<	120<	10<	200<	50<	5<	20<
Chlorobenzene	**8900**	**2600**	**200**	**6400**	**1200**	**110**	**510**
Chloroform	2500<	120<	10<	200<	50<	5<	20<
Cis/Trans-1,2-Dichloroethene	2500<	120<	10<	200<	**110**	**23**	20<
Ethylbenzene	2500<	120<	10<	200<	50<	**12**	20<
Toluene	2500<	120<	10<	200<	50<	5<	20<
Vinyl chloride	5000<	250<	20<	400<	**350**	**44**	40<
Total VOCs	87900	7500	330	12600	1790	329	640

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Dupliciate analysis

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation:	GP-15B	GP-16B	GP-17B	GP-18B	GP-19B	GP-20B
Date Sampled:	02/01/00	2/1/00	2/2/00	2/3/00	2/3/00	2/3/00
Compound Name						
1,1-Dichloroethane	1000<	5<	500<	200<	2500<	50<
1,1-Dichloroethene	1000<	5<	500<	200<	2500<	50<
2-Butanone (MEK)	5000<	25<	2500<	1000<	12000<	250<
4-Methyl-2-pentanone (MIBK)	5000<	25<	2500<	1000<	12000<	250<
Acetone	10000<	50<	5000<	2000<	25000<	500<
Benzene	**21000**	**76**	**11000**	**7300**	2500<	50<
Carbon disulfide	1000<	5<	500<	200<	2500<	50<
Chlorobenzene	**36000**	**180**	500<	200<	**12000**	**1900**
Chloroform	1000<	5<	500<	200<	2500<	50<
Cis/Trans-1,2-Dichloroethene	1000<	5<	500<	200<	2500<	50<
Ethylbenzene	1000<	**10**	500<	200<	2500<	50<
Toluene	1000<	5<	500<	200<	**63000**	**920**
Vinyl chloride	2000<	10<	1000<	400<	5000<	100<
Total VOCs	57000	266	11000	7300	75000	2820

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Dupliciate analysis

Table 2. Groundwater Data Summary - Volatile Organic Compounds

May 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation: / Sample Date: / Compound Name	B-21B 5/10/00	B-24C 5/11/00	B-24D 5/11/00	B-25B 5/10/00	B-26B 5/11/00	B-28B 5/10/00	B-29B 5/10/00	**GM-18B 5/8/00**	**GM-19B 5/9/00**
1,1-Dichloroethane	500<	500<	500<	500<	200<	120<	**210**	10<	5<
1,2-Dichloroethane	500<	**9200**	**9200**	**8700**	200<	120<	50<	10<	5<
4-Methyl-2-pentanone (MIBK)	2500<	2500<	2700	2500<	1000<	**3100**	**340**	50<	25<
Acetone	5000<	**6200**	**6400**	**22000**	**8300**	1200<	**750**	100<	50<
Benzene	**6300**	**2000**	**2000**	500<	**440**	**190**	**51**	**39**	5<
Chlorobenzene	**16000**	**8800**	**8800**	**16000**	**5900**	**2800**	**1600**	**310**	5<
Cis/Trans-1,2-Dichloroethene	500<	100<	100<	500<	40<	120<	50<	10<	5<
Tetrachloroethene	500<	500<	500<	500<	**210**	120<	50<	10<	5<
Toluene	500<	**2500**	**2500**	**510**	**3000**	**650.**	**400**	10<	5<
Xylenes, Total	1000<	1000<	1000<	1000<	**540**	250<	**260**	20<	10<
Total VOCs	22300	28700	31600	47210	18390	6740	3611	349	0

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

May 2000 - Intermediate Zone, Plant-Wide Data

Compound Name	Sample Designation: / Sample Date:	GM-20B 5/9/00	GM-27B 5/10/00	GM-54B 5/11/00	GM-60B 5/9/00
1,1-Dichloroethane		**84**	500<	5<	25<
1,2-Dichloroethane		50<	500<	5<	25<
4-Methyl-2-pentanone (MIBK)		250<	2500<	25<	120<
Acetone		500<	5000<	50<	250<
Benzene		**76**	**1400**	5<	25<
Chlorobenzene		**910**	**11000**	**25**	**850**
Cis/Trans-1,2-Dichloroethene		**420**	500<	1<	25<
Tetrachloroethene		50<	500<	5<	25<
Toluene		50<	**700**	5<	25<
Xylenes, Total		100<	1000<	10<	50<
Total VOCs		1490	13100	25	850

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = *Compound was not detected above the corresponding method detection limit.*

Table 2. Groundwater Data Summary - Volatile Organic Compounds

January 2000 - Deep Zone, Plant-Wide Data

Designation: / Date Sampled: / Compound Name	MW-3C 01/27/00	GM-4C 01/27/00	MW-5C 01/28/00	MW-7C 01/25/00	GM-9C 02/01/00	GM-10C 02/02/00	GM-12C 02/02/00	GM-17C 01/31/00	GM-31C 01/28/00
Benzene	250<	**52**	**960**	200<	**30**	**460**	**190**	**120**	**82**
Chlorobenzene	**9500**	**560**	**990**	**7800**	**21**	**2500**	**150**	**260**	**2000**
Cis/Trans-1,2-Dichloroethene	250<	25<	50<	**220**	5<	100<	5<	10<	50<
	9500	612	1950	8020	51	2960	340	380	2082

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection level.

Table 2. Groundwater Data Summary - Volatile Organic Compounds

May 2000 - Deep Zone, Plant-Wide Data

Sample ID:	GM-19C	GM-27C	GM-56C	GM-60C
Sample Date:	5/9/00	5/10/00	5/11/00	5/9/00
Compound Name				
1,2-Dichloroethane	5<	100<	5<	10<
4-Methyl-2-pentanone (MIBK)	25<	500<	25<	50<
Acetone	50<	1000<	**86**	100<
Benzene	5<	**250**	**6.6**	**18**
Chlorobenzene	**75**	**1700**	**140**	**230**
Ethylbenzene	5<	100<	**6.3**	10<
Toluene	5<	100<	**23**	10<
Xylenes, Total	10<	200<	**43**	20<
Total VOCs	75	1950	304.9	248

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in ***bold.***

< = Compound was not detected above the corresponding method detection level.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GM-2	GM-3	GM-4AR	GM-5	GM-6A	GM-7	GM-8	GM-9A
Date Sampled:	02/03/00	01/27/00	01/26/00	01/28/00	01/26/00	01/25/00	01/31/00	02/01/00
Compound Name								
1,2,4-Trichlorobenzene	10<	10<	10<	10<	10<	10<	10<	10<
1,2-Dichlorobenzene	10<	10<	10<	10<	**48**	10<	10<	**26**
1,4-Dichlorobenzene	10<	10<	10<	10<	**27**	10<	10<	**28**
2,4,6-Trichlorophenol	10<	10<	10<	10<	10<	10<	10<	10<
2-Chloroaniline	20<	20<	20<	20<	20<	20<	20<	20<
2-Chlorophenol	10<	10<	10<	10<	**57**	10<	10<	10<
2-Nitroaniline	50<	50<	50<	50<	50<	50<	50<	50<
2-Nitrobiphenyl	NA	NA	NA	NA	NA	NA	10<	NA
2-Nitrophenol	10<	10<	10<	10<	10<	10<	10<	10<
3-Chloroaniline	20<	20<	20<	20<	20<	20<	20<	20<
4-Chloroaniline	20<	20<	20<	20<	20<	20<	20<	20<
4-Chlorophenol	10<	10<	10<	10<	**96**	10<	10<	10<
bis(2-Ethylhexyl)phthalate	10<	10<	10<	10<	**19**	10<	10<	10<
Butylbenzylphthalate	10<	10<	10<	10<	10<	10<	10<	10<
Nitrobenzene	10<	10<	10<	10<	10<	10<	10<	10<
Pentachlorophenol	50<	50<	50<	50<	50<	50<	50<	50<
Phenol	10<	10<	10<	10<	10<	10<	10<	10<
Total SVOCs	0	0	0	0	247	0	0	54

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GM-13	GM-14	GM-15	GM-17A	GM-18A	GM-29	GM-31A	GM-32
Date Sampled:	02/01/00	02/03/00	02/02/00	01/31/00	01/28/00	02/03/00	01/28/00	02/02/00
Compound Name								
1,2,4-Trichlorobenzene	1800000<	1000<	100<	10<	10<	10<	10<	50<
1,2-Dichlorobenzene	**23000000**	**11000**	100<	10<	10<	10<	10<	50<
1,4-Dichlorobenzene	**17000000**	**2700**	100<	**16**	10<	10<	10<	50<
2,4,6-Trichlorophenol	1800000<	1000<	100<	10<	10<	10<	**320**	50<
2-Chloroaniline	3700000<	**1900**	**700**	20<	20<	20<	20<	100<
2-Chlorophenol	1800000<	1000<	100<	**24**	10<	10<	10<	**79**
2-Nitroaniline	9200000<	5000<	**1100**	50<	50<	50<	50<	250<
2-Nitrobiphenyl	NA	NA	NA	NA	NA	NA	**210**	NA
2-Nitrophenol	1800000<	1000<	100<	10<	10<	10<	10<	50<
3-Chloroaniline	3700000<	20<	200<	20<	20<	20<	20<	100<
4-Chloroaniline	3700000<	**21000**	200<	20<	20<	20<	20<	100<
4-Chlorophenol	1800000<	10<	100<	**31**	10<	10<	10<	**120**
bis(2-Ethylhexyl)phthalate	1800000<	1000<	100<	**22**	**20**	10<	**120**	50<
Butylbenzylphthalate	1800000<	1000<	100<	10<	10<	10<	**31**	50<
Nitrobenzene	1800000<	1000<	100<	10<	10<	10<	**43**	50<
Pentachlorophenol	9200000<	**18000**	500<	50<	50<	50<	**52**	250<
Phenol	1800000<	1000<	100<	**160**	10<	10<	10<	**790**
Total SVOCs	40000000	54600	1800	253	20	0	776	989

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold**.

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GM-33	GM-34	GM-35	GM-36	GM-37	GM-38	GM-54A	GM-59A
Date Sampled:	02/01/00	02/01/00	02/01/00	02/01/00	02/01/00	01/25/00	02/01/00	01/31/00
Compound Name								
1,2,4-Trichlorobenzene	10<	100<	10<	10<	10<	10<	10<	10<
1,2-Dichlorobenzene	10<	100<	10<	10<	10<	10<	10<	10<
1,4-Dichlorobenzene	10<	100<	**38**	10<	10<	10<	10<	10<
2,4,6-Trichlorophenol	10<	100<	10<	10<	10<	10<	10<	10<
2-Chloroaniline	**33**	20<	20<	20<	20<	20<	20<	20<
2-Chlorophenol	10<	100<	10<	10<	10<	10<	10<	10<
2-Nitroaniline	50<	500<	50<	50<	50<	50<	50<	50<
2-Nitrobiphenyl	NA	NA	NA	NA	NA	NA	10<	10<
2-Nitrophenol	10<	100<	10<	10<	10<	10<	10<	10<
3-Chloroaniline	20<	20<	20<	20<	20<	20<	20<	20<
4-Chloroaniline	**63**	200<	**320**	20<	20<	20<	20<	20<
4-Chlorophenol	**12**	10<	10<	10<	10<	10<	10<	10<
bis(2-Ethylhexyl)phthalate	10<	100<	10<	10<	10<	10<	**13**	**26**
Butylbenzylphthalate	10<	100<	10<	10<	10<	10<	10<	**29**
Nitrobenzene	10<	100<	10<	10<	10<	10<	10<	10<
Pentachlorophenol	50<	500<	50<	50<	50<	50<	50<	50<
Phenol	**240**	**1800**	**260**	**290**	10<	10<	**15**	10<
Total SVOCs	348	1800	618	290	0	0	28	55

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / Compound Name	CA-1 02/02/00	CA-2 02/02/00	CA-3 02/02/00	DUP-3 02/02/2000 (Dup of CA-3)	CA-4 02/02/00	DW-34 01/26/00	GP-1A 01/25/00	GP-3A 01/26/00
1,2,4-Trichlorobenzene	NA	NA	NA	400<	NA	50<	10<	10<
1,2-Dichlorobenzene	**430**	**1000**	**2300**	**1900**	**10**	50<	10<	10<
1,4-Dichlorobenzene	400<	500<	400<	400<	**16**	50<	10<	10<
2,4,6-Trichlorophenol	400<	500<	400<	400<	10<	50<	10<	10<
2-Chloroaniline	**6100**	1000<	800<	**2900**	**230**	100<	20<	20<
2-Chlorophenol	400<	500<	400<	400<	10<	50<	10<	10<
2-Nitroaniline	2000<	2500<	2000<	2000<	50<	250<	50<	50<
2-Nitrobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	400<	500<	**1800**	**1300**	10<	50<	10<	10<
3-Chloroaniline	800<	1000<	800<	800<	20<	100<	20<	20<
4-Chloroaniline	NA	NA	NA	800<	NA	100<	20<	20<
4-Chlorophenol	400<	500<	400<	400<	10<	50<	10<	10<
bis(2-Ethylhexyl)phthalate	NA	NA	NA	400<	NA	50<	10<	10<
Butylbenzylphthalate	NA	NA	NA	400<	NA	50<	10<	10<
Nitrobenzene	400<	500<	400<	400<	10<	50<	10<	10<
Pentachlorophenol	NA	NA	NA	2000<	NA	250<	50<	50<
Phenol	400<	500<	400<	400<	10<	**910**	10<	10<
Total SVOCs	6530	1000	4100	6100	256	910	0	0

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GP-4A	GP-5A	GP-6A	GP-7A	GP-8A	GP-9A	GP-10A	GP-11A
Date Sampled:	01/26/00	01/26/00	01/27/00	01/27/00	01/27/00	01/28/00	01/28/00	01/28/00
Compound Name								
1,2,4-Trichlorobenzene	10<	10<	10<	10<	10<	10<	10<	40<
1,2-Dichlorobenzene	10<	10<	10<	10<	10<	10<	10<	40<
1,4-Dichlorobenzene	10<	10<	10<	10<	10<	10<	10<	40<
2,4,6-Trichlorophenol	10<	10<	10<	10<	10<	10<	10<	40<
2-Chloroaniline	20<	20<	20<	20<	20<	NA	NA	80<
2-Chlorophenol	**22**	10<	10<	10<	10<	**57**	10<	**140**
2-Nitroaniline	50<	50<	50<	50<	50<	50<	50<	200<
2-Nitrobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	10<	10<	10<	10<	10<	10<	10<	40<
3-Chloroaniline	20<	20<	20<	20<	20<	20<	20<	80<
4-Chloroaniline	20<	20<	20<	20<	20<	20<	20<	80<
4-Chlorophenol	**43**	**12**	10<	10<	10<	**100**	10<	**590**
bis(2-Ethylhexyl)phthalate	10<	10<	10<	10<	10<	10<	10<	40<
Butylbenzylphthalate	10<	10<	10<	10<	10<	10<	10<	40<
Nitrobenzene	10<	10<	10<	10<	10<	10<	10<	40<
Pentachlorophenol	50<	50<	50<	50<	50<	50<	50<	200<
Phenol	**240**	10<	10<	10<	10<	10<	10<	**940**
Total SVOCs	305	12	0	0	0	157	0	1670

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, Plant-Wide Data

Sample Designation:	GP-12A	GP-13A	GP-14A	GP-15A	GP-16A	GP-17A	GP-18A	GP-19A	GP-20A
Date Sampled:	01/31/00	01/31/00	02/01/00	02/01/00	02/01/00	02/02/00	02/03/00	02/03/00	02/03/00
Compound Name									
1,2,4-Trichlorobenzene	200<	10<	10<	250<	200<	10<	10<	**7800**	50<
1,2-Dichlorobenzene	**7300**	10<	10<	250<	200<	10<	10<	**76000**	**590**
1,4-Dichlorobenzene	**590**	**24**	10<	250<	200<	10<	**140**	**36000**	**100**
2,4,6-Trichlorophenol	200<	10<	10<	250<	200<	10<	10<	5000<	50<
2-Chloroaniline	400<	20<	**35**	**6400**	**3200**	**70**	**30**	20<	20<
2-Chlorophenol	200<	10<	**33**	250<	200<	10<	10<	5000<	50<
2-Nitroaniline	1000<	50<	50<	1200<	1000<	50<	50<	25000<	250<
2-Nitrobiphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	200<	10<	10<	250<	200<	10<	10<	5000<	50<
3-Chloroaniline	400<	20<	**32**	500<	400<	10<	20<	20<	20<
4-Chloroaniline	400<	20<	20<	**2600**	**1600**	20<	20<	10000<	100<
4-Chlorophenol	200<	10<	**63**	250<	200<	10<	10<	10<	10<
bis(2-Ethylhexyl)phthalate	200<	10<	10<	250<	200<	10<	10<	5000<	50<
Butylbenzylphthalate	200<	10<	10<	250<	200<	10<	10<	5000<	50<
Nitrobenzene	200<	10<	10<	**290**	200<	10<	10<	5000<	50<
Pentachlorophenol	1000<	50<	50<	1200<	1000<	50<	50<	25000<	250<
Phenol	200<	**15**	**22**	250<	200<	10<	10<	5000<	50<
Total SVOCs	7890	39	185	9290	4800	70	170	119800	690

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

NA - Not Analyzed.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, RCRA Closure Data

Compound Name	Sample Designation: / Date Sampled:	BBU-B52 01/00	BBU-B53 01/00	BBU-B54 01/00	BBU-B55 01/00	BBU-B56 01/00	BBU-B57 01/00	BBU-B58 01/00	BBU-B59 01/00
1,2,4-Trichlorobenzene		ND	ND	ND	**21**	**23**	**40**	**39**	**230**
1,2-Dichlorobenzene		**190D**	**8.8J**	**11**	**52DJ**	**41**	**1600D**	**70**	**66**
1,3-Dichlorobenzene		**17**	ND	ND	ND	**13**	**36**	ND	**15**
1,4-Dichlorobenzene		**59**	**38**	**43**	**350**	**160**	**3100D**	**250**	**320**
2,4-Dichlorophenol		**14**	ND	ND	**22**	**26**	**34**	**50**	**40**
2,4,5-Trichlorophenol		**10**	ND	**5.7J**	**8.9J**	**20**	ND	**41**	**30**
2,4,6-Trichlorophenol		**91**	ND	**5.8J**	**48**	**74**	ND	**80**	**26**
2-Chlorophenol		ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol		ND	**5.2J**	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene		ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline		**80**	ND	ND	**240**	**530D**	**870D**	**860D**	**370D**
Benzo(a)anthracene		ND	ND	ND	ND	ND	ND	**5.6J**	ND
Benzo(g,h,I)perylene		ND	ND	ND	ND	ND	ND	ND	10DJB
Benzo(k)fluoranthene		ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate		ND	ND	ND	ND	ND	ND	ND	ND
Chysene		ND	ND	ND	ND	ND	ND	**8.2J**	ND
Di-n-butylphthalate		ND	**7J**	**8.1J**	ND	ND	ND	**9.3J**	ND
Flouranthene		ND	ND	ND	ND	ND	ND	**13**	ND
Naphthalene		ND	ND	ND	ND	ND	ND	**7.1J**	ND
Nitrobenzene		ND	ND	ND	**11**	ND	ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND	**7.7J**	ND	ND	ND	ND
Phenanthrene		ND	ND	ND	ND	ND	ND	**11**	ND
Pentachlorophenol		**380D**	ND	**52**	**2500D**	**1200D**	**44J**	**1400D**	**240**
Phenol		**170**	**43**	ND	**73**	**150**	**350E**	**350E**	**370E**
Pyrene		ND	ND	ND	ND	ND	ND	**10**	ND
Total SVOCs		1011	102	125.6	3333.6	2237	6074	3204.2	1707

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold**.

ND = Compound was not detected above the method detection limit.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, RCRA Closure Data

Compound Name	Sample Designation: / Date Sampled:	PCB-B60 01/00	SOT-B64 01/00	SOT-B65 01/00	SOT-B66 01/00	SCT-B67 01/00	SCT-B68 01/00	SCT-B69 01/00	SCT-B71 01/00
1,2,4-Trichlorobenzene		**7J**	ND	ND	ND	ND	**670**	**400**	**170**
1,2-Dichlorobenzene		ND	ND	ND	ND	ND	**4700**	**5400**	**19000**
1,3-Dichlorobenzene		ND	ND	ND	ND	ND	**180J**	**220**	**700**
1,4-Dichlorobenzene		ND	ND	ND	ND	**6.5J**	**5700**	**8300**	**28000**
2,4-Dichlorophenol		ND	ND	ND	ND	ND	ND	**37**	**380**
2,4,5-Trichlorophenol		ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol		ND	ND	ND	ND	ND	ND	**6.5J**	**99J**
2-Chlorophenol		ND	ND	ND	ND	ND	ND	**260**	**590**
2-Methylphenol		ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene		ND	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline		ND	ND	ND	ND	ND	ND	ND	**60J**
Benzo(a)anthracene		ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,I)perylene		6.8JB	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene		ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate		ND	ND	ND	ND	ND	ND	ND	ND
Chysene		ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butylphthalate		ND	ND	ND	ND	ND	ND	ND	ND
Flouranthene		ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene		ND	ND	ND	ND	ND	ND	**7.8J**	ND
Nitrobenzene		ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene		ND	ND	ND	ND	ND	**100J**	ND	ND
Pentachlorophenol		ND	ND	ND	ND	ND	ND	ND	ND
Phenol		ND	ND	ND	ND	ND	ND	**43**	**260**
Pyrene		ND	ND	ND	ND	ND	ND	ND	ND
Total SVOCs		7	0	0	0	6.5	11350	14674.3	49259

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Shallow Zone, RCRA Closure Data

Compound Name	Sample Designation: / Date Sampled:	NTF-B72 01/00	NTF-B74 01/00	NTF-B75 01/00	NTF-B76 01/00	NTF-B77 01/00	NTF-B78 01/00
1,2,4-Trichlorobenzene		ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene		**110**	ND	ND	ND	ND	ND
1,3-Dichlorobenzene		**5J**	ND	ND	ND	ND	ND
1,4-Dichlorobenzene		**160**	ND	ND	ND	ND	ND
2,4-Dichlorophenol		ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol		ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol		ND	ND	ND	ND	ND	ND
2-Chlorophenol		ND	**18**	ND	ND	ND	**9.6J**
2-Methylphenol		ND	ND	ND	ND	ND	ND
2-Methylnaphthalene		ND	ND	ND	**320**	**63**	ND
4-Chloroaniline		ND	ND	**72J**	ND	ND	ND
Benzo(a)anthracene		ND	ND	ND	ND	ND	ND
Benzo(g,h,I)perylene		ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene		ND	ND	**12J**	ND	ND	ND
bis(2-Ethylhexyl)phthalate		ND	**7.5J**	ND	ND	ND	ND
Chysene		ND	ND	ND	ND	ND	ND
Di-n-butylphthalate		ND	ND	ND	ND	ND	ND
Flouranthene		ND	ND	ND	ND	ND	ND
Naphthalene		ND	ND	ND	**520**	ND	ND
Nitrobenzene		ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine		ND	ND	ND	ND	ND	ND
Phenanthrene		ND	ND	ND	ND	ND	ND
Pentachlorophenol		ND	ND	ND	ND	ND	ND
Phenol		ND	ND	ND	**1600**	ND	ND
Pyrene		ND	ND	ND	ND	ND	ND
Total SVOCs		275	25.5	84	2440	63	9.6

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 1999 - Shallow Zone, IEPA CERCLA Data

Sample Designation: / Date Sampled: / Compound Name	G101 05/10/99	G102 05/10/99	G103 05/10/99	G104 05/11/99	G105 05/11/99	G106 05/11/99
1,2,4-Trichlorobenzene	ND	**260**	**11**	**1400D**	ND	ND
1,2-Dichlorobenzene	**19**	**11000D**	**13**	**3300D**	ND	**2J**
1,3-Dichlorobenzene	ND	**10J**	**12**	**150DJ**	ND	**1J**
1,4-Dichlorobenzene	ND	**67J**	**180D**	**1600D**	ND	**15J**
2,4-Dichlorophenol	ND	ND	**3J**	**270DJ**	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	**6J**	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	**200DJ**	ND	ND
2-Chlorophenol	ND	**280**	ND	**59**	ND	**15**
2-Nitroaniline	ND	**110J**	ND	ND	ND	ND
2-Nitrophenol	**17**	**23000**	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	**2J**	ND	ND
4-Chloroaniline	ND	**12J**	**2J**	**86DJ**	ND	**0.7J**
4-Methylphenol	ND	**23J**	ND	**1J**	ND	ND
4-Nitroanline	ND	ND	ND	**0.8J**	ND	ND
4-Nitrophenol	ND	**510**	ND	**16J**	ND	ND
bis(2-Ethylhexyl)phthalate	0.8BJ	ND	2BJ	2BJ	1BJ	1BJ
Dibenzofuran	ND	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	0.7BJ	1BJ	0.5BJ	**0.6J**
Di-n-butylphthalate	ND	ND	**0.7J**	**0.8J**	ND	**0.7J**
Hexachlorobutadiene	ND	ND	**0.8J**	ND	ND	ND
Naphthalene	ND	ND	ND	**0.9J**	ND	ND
Nitrobenzene	ND	**43J**	ND	**24**	ND	**22**
Pentachlorophenol	ND	ND	**12J**	**170DJ**	ND	**0.5J**
Phenanthrene	ND	ND	ND	ND	ND	ND
Phenol	ND	**270**	ND	**15**	ND	ND
Total SVOCs	36	35,585	234.5	7286.5	0	57.5

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

IEPA - Illinois Environmental Protection Agency

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 1999 - Shallow Zone, IEPA CERCLA Data

Sample Designation:	G107	G108	G109	G110	G111	G112	G113
Date Sampled:	05/12/99	05/11/99	05/12/99	05/13/99	05/12/99	05/13/99	05/13/99
Compound Name							
1,2,4-Trichlorobenzene	ND	ND	ND	**3J**	ND	ND	ND
1,2-Dichlorobenzene	ND	**1J**	ND	**30**	**5J**	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	**2J**	ND	ND	ND
1,4-Dichlorobenzene	**2J**	**2J**	ND	**260D**	**2J**	ND	ND
2,4-Dichlorophenol	ND	ND	**190**	**6J**	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	**57J**	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	**2700D**	ND	ND	ND	ND
2-Chlorophenol	**2J**	ND	**5J**	**2J**	ND	ND	ND
2-Nitroaniline	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	ND	ND	ND	ND
4-Chloroaniline	ND	**150D**	**250**	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND
4-Nitroanline	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	1BJ	6BJ	4BJ	4BJ	1BJ	3BJ	2BJ
Dibenzofuran	ND	**0.6J**	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	**1J**	**2J**
Di-n-butylphthalate	ND	**0.7J**	ND	**1J**	ND	**0.6J**	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Naphthalene	**7J**	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	**11000D**	**15J**	ND	ND	**2J**
Phenanthrene	ND	**0.7J**	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	**200D**	ND	ND	ND
Total SVOCs	11	155	14202.0	519	7	1.6	4

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

IEPA - *Illinois Environmental Protection Agency*

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 1999 - Shallow Zone, IEPA CERCLA Data

Sample Designation: / Date Sampled: / Compound Name	G114 05/12/99	G115 05/12/99	G116 05/11/99
1,2,4-Trichlorobenzene	ND	ND	**0.7J**
1,2-Dichlorobenzene	**37**	ND	**3J**
1,3-Dichlorobenzene	**5J**	ND	**1J**
1,4-Dichlorobenzene	**280D**	ND	**18**
2,4-Dichlorophenol	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND
2,4,6-Trichlorophenol	**0.6J**	ND	ND
2-Chlorophenol	**18**	ND	**14**
2-Nitroaniline	ND	ND	ND
2-Nitrophenol	ND	ND	ND
3-Nitroaniline	ND	ND	ND
4-Chloroaniline	ND	ND	**0.7J**
4-Methylphenol	ND	ND	ND
4-Nitroanline	ND	ND	ND
4-Nitrophenol	ND	ND	ND
bis(2-Ethylhexyl)phthalate	3BJ	2BJ	1BJ
Dibenzofuran	ND	ND	ND
Diethylphthalate	ND	ND	ND
Di-n-butylphthalate	ND	ND	**0.6J**
Hexachlorobutadiene	ND	ND	ND
Naphthalene	**1J**	ND	ND
Nitrobenzene	ND	ND	**31**
Pentachlorophenol	**5J**	**2J**	**0.6J**
Phenanthrene	ND	ND	ND
Phenol	**2J**	ND	**0.8J**
Total SVOCs	348.6	2	70.4

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

ND = Compound was not detected above the method detection limit.

IEPA - Illinois Environmental Protection Agency

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 2000 - Shallow Zone, Plant-Wide Data

Sample Designation: / Sample Date: / Compound Name	B-21B 05/10/00	B-22A 05/10/00	B24A 05/11/00	B24C 05/11/00	B24D 05/11/00	B-25A 05/10/00	B-25B 05/10/00	B26A 5/11/00	B26B 5/11/00
Aniline	8000<	**62000**	80000<	20000<	40000<	400000<	50000<	**2000**	16000<
bis(2-Ethylhexyl)phthalate	4000<	**17000**	40000<	10000<	20000<	200000<	25000<	250<	8000<
Naphthalene	**12000**	5000<	40000<	**13000**	20000<	200000<	25000<	250<	8000<
Nitrobenzene	**14000**	5000<	40000<	10000<	20000<	200000<	25000<	250<	8000<
Pentachlorophenol	20000<	25000<	200000<	50000<	100000<	1000000<	120000<	1200<	40000<
Phenol	**42000**	**43000**	**650000**	**130000**	**130000**	**490000**	**680000**	250<	**26000**
1,2-Dichlorobenzene	4000<	5000<	40000<	10000<	20000<	200000<	25000<	250<	8000<
1,4-Dichlorobenzene	4000<	5000<	40000<	10000<	20000<	200000<	25000<	250<	8000<
2,4-Dichlorophenol	**23000**	5000<	**42000**	**68000**	**66000**	**340000**	**57000**	250<	**9500**
2,4-Dimethylphenol	4000<	5000<	40000<	10000<	20000<	200000<	25000<	250<	8000<
2-Chloroaniline	**32000**	**21000**	**100000**	**140000**	**140000**	**308000**	**280000**	**4300**	**73000**
2-Chlorophenol	**26000**	5000<	**330000**	**44000**	**44000**	200000<	**45000**	250<	8000<
2-Nitrochlorobenzene	**56000**	**22000**	40000<	**76000**	**70000**	**3400000**	**270000**	250<	**26000**
3-Chloroaniline	**14000**	5000<	40000<	18000	20000<	200000<	25000<	250<	**28000**
3-Methylphenol/4-Methylphenol (m&p-Cresol)	4000<	5000<	40000<	10000<	20000<	200000<	25000<	250<	8000<
3-Nitrochlorobenzene	**110000**	5000<	**130000**	**340000**	**330000**	**730000**	**50000**	250<	**130000**
4-Chloroaniline	**16000**	10000<	80000<	20000<	40000<	400000<	50000<	**1900**	**35000**
4-Chlorophenol	**30000**	5000<	40000<	**33000**	**31000**	200000<	**37000**	250<	8000<
4-Nitrochlorobenzene	**61000**	5000<	40000<	10000<	20000<	**1500000**	**110000**	250<	8000<
Total SVOCs	436000	165000	1252000	862000	811000	6760000	1529000	8200	327500

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 2000 - Shallow Zone, Plant-Wide Data

Sample Designation: / Sample Date: / Compound Name	B-28A 5/10/00	B-28B 5/10/00	B29A 5/11/00	B-29A 5/10/00 Dup	B-29B 5/10/00	EE-24 5/9/00	FB-1 5/9/00	FB-2 5/10/00	GM-18B 5/8/00	GM-19A 5/9/00
Aniline	20<	20000<	200000<	80000<	100000<	20<	20<	20<	20<	160<
bis(2-Ethylhexyl)phthalate	10<	10000<	100000<	40000<	50000<	10<	10<	10<	10<	80<
Naphthalene	10<	10000<	100000<	**86000**	50000<	10<	10<	10<	10<	80<
Nitrobenzene	10<	10000<	100000<	40000<	50000<	10<	10<	10<	10<	80<
Pentachlorophenol	50<	50000<	500000<	200000<	250000<	50<	50<	50<	50<	**1900**
Phenol	10<	**220000**	**2000000**	**1900000**	**1100000**	10<	10<	10<	10<	80<
1,2-Dichlorobenzene	10<	10000<	100000<	40000<	50000<	10<	10<	10<	10<	80<
1,4-Dichlorobenzene	10<	10000<	100000<	40000<	50000<	10<	10<	10<	**54**	80<
2,4-Dichlorophenol	10<	**39000**	100000<	**64000**	**83000**	10<	10<	10<	10<	80<
2,4-Dimethylphenol	10<	10000<	100000<	**44000**	50000<	10<	10<	10<	10<	80<
2-Chloroaniline	**35**	**120000**	100000<	40000<	50000<	10<	10<	10<	**54**	**170**
2-Chlorophenol	10<	**37000**	**540000**	**540000**	**160000**	10<	10<	10<	10<	80<
2-Nitrochlorobenzene	10<	10000<	**150000**	40000<	50000<	10<	10<	10<	10<	80<
3-Chloroaniline	10<	10000<	100000<	40000<	50000<	10<	10<	10<	**10**	80<
3-Methylphenol/4-Methylphenol (m&p-Cresol)	10<	**35000**	**260000**	**280000**	**110000**	10<	10<	10<	10<	80<
3-Nitrochlorobenzene	**20**	10000<	100000<	40000<	50000<	10<	10<	10<	10<	80<
4-Chloroaniline	20<	**71000**	200000<	80000<	100000<	20<	20<	20<	20<	160<
4-Chlorophenol	10<	**34000**	**210000**	40000<	**67000**	10<	10<	10<	**18**	80<
4-Nitrochlorobenzene	**69**	10000<	100000<	40000<	50000<	10<	10<	10<	10<	80<
Total SVOCs	124	556000	3160000	2914000	1520000	0	0	0	136	2070

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 2000 - Shallow Zone, Plant-Wide Data

Sample Designation: / Sample Date: / Compound Name	GM-19B 5/9/00	GM-19C 5/9/00	GM-19D 5/9/00	GM-20B 5/9/00	GM-23A 5/9/00	GM-27B 5/10/00	GM-27C 5/10/00	GM-54A 5/11/00	GM-54B 5/11/00	GM56C 5/11/00
Aniline	20<	20<	20<	100<	20<	39000	**2800**	20<	20<	2000<
bis(2-Ethylhexyl)phthalate	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
Naphthalene	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
Nitrobenzene	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
Pentachlorophenol	50<	50<	50<	250<	50<	10000<	1000<	50<	50<	5000<
Phenol	10<	10<	10<	50<	10<	**8100**	200<	10<	10<	1000<
1,2-Dichlorobenzene	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
1,4-Dichlorobenzene	10<	**180**	10<	**530**	10<	2000<	200<	10<	10<	1000<
2,4-Dichlorophenol	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
2,4-Dimethylphenol	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
2-Chloroaniline	10<	**120**	10<	50<	10<	**20000**	**620**	10<	**15**	**14000**
2-Chlorophenol	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
2-Nitrochlorobenzene	10<	10<	10<	50<	10<	2000<	200<	10<	10<	**3800**
3-Chloroaniline	10<	10<	10<	50<	10<	25000	**3200**	10<	**87**	1000<
3-Methylphenol/4-Methylphenol (m&p-Cresol)	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
3-Nitrochlorobenzene	10<	10<	10<	50<	10<	2000<	200<	10<	10<	**17000**
4-Chloroaniline	20<	20<	20<	100<	20<	**25000**	400<	20<	20<	2000<
4-Chlorophenol	10<	**16**	10<	50<	10<	2000<	**300**	10<	10<	1000<
4-Nitrochlorobenzene	10<	10<	10<	50<	10<	2000<	200<	10<	10<	1000<
Total SVOCs	0	316	0	530	0	117100	6920	0	102	34800

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 2000 - Shallow Zone, Plant-Wide Data

Sample Designation: / Sample Date: / Compound Name	GM-60A 5/9/00	GM-60B 5/9/00	GM-60C 5/9/00	GM-18A 5/8/00
Aniline	20<	20<	80<	20<
bis(2-Ethylhexyl)phthalate	10<	10<	40<	10<
Naphthalene	10<	10<	40<	10<
Nitrobenzene	10<	10<	40<	10<
Pentachlorophenol	50<	50<	200<	50<
Phenol	10<	10<	40<	10<
1,2-Dichlorobenzene	**42**	**15**	**83**	10<
1,4-Dichlorobenzene	**33**	**63**	**790**	10<
2,4-Dichlorophenol	10<	10<	40<	10<
2,4-Dimethylphenol	10<	10<	40<	10<
2-Chloroaniline	10<	10<	**140**	10<
2-Chlorophenol	10<	**16**	40<	10<
2-Nitrochlorobenzene	10<	10<	40<	10<
3-Chloroaniline	10<	10<	**47**	10<
3-Methylphenol/4-Methylphenol (m&p-Cresol)	10<	10<	40<	10<
3-Nitrochlorobenzene	10<	10<	40<	10<
4-Chloroaniline	20<	20<	80<	20<
4-Chlorophenol	10<	10<	40<	10<
4-Nitrochlorobenzene	10<	10<	40<	10<
Total SVOCs	75	94	1060	0

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis.

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / Compound Name	MW-3B 01/27/00	GM-4B 01/26/00	MW-5B 01/28/00	GM-6B 01/26/00	DUP-1 01/26/00 (Dup of GM-6B)	MW-7B 01/25/00	GM-9B 02/01/00	GM-10B 02/02/00
1,2-Dichlorobenzene	10<	10<	10<	**120**	**90**	10<	10<	100<
1,4-Dichlorobenzene	**14**	10<	**47**	**320**	**240**	**30**	10<	**470**
2,4-Dichlorophenol	10<	10<	10<	20<	10<	10<	10<	100<
2-Chloroaniline	20<	**26**	**160**	**550**	**340**	20<	**33**	**1500**
2-Chlorophenol	10<	10<	**49**	**56**	**36**	10<	10<	100<
2-Methylnaphthalene	10<	10<	10<	20<	10<	10<	10<	100<
3-Chloroaniline	20<	20<	**42**	40<	20<	20<	20<	200<
4-Chloroaniline	20<	**53**	**200**	**290**	**190**	20<	20<	200<
4-Chlorophenol	**12**	**18**	10<	**120**	**74**	10<	10<	100<
bis(2-Ethylhexyl)phthalate	**12**	10<	**10**	20<	**32**	**17**	**31**	100<
Butylbenzylphthalate	10<	10<	10<	20<	10<	10<	**16**	100<
Naphthalene	10<	10<	10<	20<	10<	10<	10<	100<
Phenol	**100**	10<	**220**	**30**	10<	10<	10<	100<
Total SVOCs	138	97	728	1486	1002	47	80	1970

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / Compound Name	GM-12B 02/02/00	GM-17B 01/31/00	GM-18B 01/28/00	GM-20B 02/01/00	DUP-2 02/01/2000 (Dup of GM-20B)	GM-31B 01/28/2000	GM-54B 02/01/2000	GP-1B 01/25/2000
1,2-Dichlorobenzene	10<	**15**	10<	10<	10<	10<	10<	**39**
1,4-Dichlorobenzene	10<	**130**	**27**	**330**	**360**	10<	10<	**22**
2,4-Dichlorophenol	10<	10<	10<	10<	**11**	10<	10<	10<
2-Chloroaniline	**25**	**75**	NA	**55**	**52**	20<	20<	20<
2-Chlorophenol	10<	**10**	10<	10<	10<	10<	10<	**64**
2-Methylnaphthalene	10<	10<	10<	10<	10<	10<	10<	10<
3-Chloroaniline	10<	20<	20<	20<	20<	20<	20<	20<
4-Chloroaniline	20<	**27**	20<	20<	20<	20<	20<	**63**
4-Chlorophenol	10<	**190**	10<	**20**	**19**	10<	10<	10<
bis(2-Ethylhexyl)phthalate	10<	**38**	**34**	10<	10<	10<	10<	10<
Butylbenzylphthalate	10<	**27**	10<	10<	10<	10<	10<	10<
Naphthalene	10<	10<	10<	10<	10<	10<	10<	10<
Phenol	**230**	**28**	**12**	**16**	**11**	10<	10<	10<
Total SVOCs	255	540	73	421	453	0	0	188

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation:	GP-2B	GP-3B	GP-4B	GP-6B	GP-7B	GP-8B	GP-9B	GP-10B	GP-11B
Date Sampled:	01/25/00	01/26/00	01/26/00	01/27/00	01/27/00	01/27/00	01/28/00	01/28/00	01/28/2000
Compound Name									
1,2-Dichlorobenzene	**82**	10<	10<	10<	10<	100<	40<	20<	20<
1,4-Dichlorobenzene	**130**	10<	10<	10<	**10**	100<	40<	20<	20<
2,4-Dichlorophenol	20<	10<	10<	10<	10<	100<	40<	20<	20<
2-Chloroaniline	40<	20<	20<	20<	20<	100<	40<	40<	40<
2-Chlorophenol	20<	**34**	**120**	**13**	10<	100<	40<	20<	**98**
2-Methylnaphthalene	20<	10<	10<	10<	10<	100<	40<	20<	20<
3-Chloroaniline	40<	20<	20<	20<	20<	100<	80<	40<	40<
4-Chloroaniline	**93**	20<	20<	20<	20<	200<	**500**	40<	**110**
4-Chlorophenol	20<	**70**	**250**	**24**	10<	100<	**75**	20<	**200**
bis(2-Ethylhexyl)phthalate	20<	10<	10<	10<	10<	100<	40<	20<	20<
Butylbenzylphthalate	20<	10<	10<	10<	10<	100<	40<	20<	20<
Naphthalene	20<	10<	10<	10<	10<	100<	40<	20<	20<
Phenol	**440**	**310**	**260**	10<	10<	**2100**	**280**	20<	**550**
Total SVOCs	745	414	630	37	10	2100	855	0	958

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold**.

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation:	GP-12B	GP-13B	GP-14B	GP-15B	GP-16B	GP-17B	GP-18B	GP-19B	GP-20B
Date Sampled:	01/31/2000	01/31/2000	02/01/2000	02/01/00	02/01/00	02/02/00	02/03/00	02/03/00	02/03/00
Compound Name									
1,2-Dichlorobenzene	**880**	10<	10<	5000<	100<	10<	40<	**150000**	**45**
1,4-Dichlorobenzene	**82**	**23**	10<	5000<	100<	10<	40<	**50000**	**67**
2,4-Dichlorophenol	50<	10<	10<	**9100**	100<	10<	40<	5000<	10<
2-Chloroaniline	100<	20<	**30**	**25000**	**990**	10<	20<	20<	**110**
2-Chlorophenol	**54**	10<	10<	5000<	100<	10<	40<	5000<	**55**
2-Methylnaphthalene	50<	10<	10<	5000<	100<	20	40<	5000<	10<
3-Chloroaniline	100<	20<	20<	10000<	200<	10<	20<	20<	20<
4-Chloroaniline	100<	20<	**110**	**92000**	**1500**	20<	80<	10000<	20<
4-Chlorophenol	50<	10<	**16**	**8500**	100<	10<	10<	10<	10<
bis(2-Ethylhexyl)phthalate	50<	10<	10<	5000<	100<	10<	40<	5000<	10<
Butylbenzylphthalate	50<	10<	10<	5000<	100<	10<	40<	5000<	10<
Naphthalene	50<	10<	10<	5000<	100<	10<	40<	5000<	**37**
Phenol	50<	**17**	10<	5000<	100<	**330**	**450**	5000<	10<
Total SVOCs	1016	40	156	134600	2490	350	450	200000	314

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = Compound was not detected above the corresponding method detection limit.

Dup - Duplicate Analysis

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation:	B-21B	B24C	B-24D	B-25B	B26B	B-28B	B-29B	GM-18B	GM-19B	GM-20B
Date Sampled:	5/10/00	5/11/00	5/11/00	5/10/00	5/11/00	5/10/00	5/10/00	5/8/00	5/9/00	5/9/00
Compound Name			Dup of B-24C							
Naphthalene	**12000**	**13000**	2000<	25000<	8000<	10000<	50000<	10<	10<	50<
Nitrobenzene	**14000**	10000<	2000<	25000<	8000<	10000<	50000<	10<	10<	50<
Phenol	**42000**	**130000**	13000	**680000**	**26000**	**220000**	**1100000**	10<	10<	50<
1,2-Dichlorobenzene	4000<	10000<	20000<	25000<	8000<	10000<	50000<	10<	10<	50<
1,4-Dichlorobenzene	4000<	10000<	20000<	25000<	8000<	10000<	50000<	**54**	10<	**530**
2,4-Dichlorophenol	**23000**	**68000**	66000	**57000**	**9500**	**39000**	**83000**	10<	10<	50<
2-Chloroaniline	**32000**	**140000**	140000	**280000**	**73000**	**120000**	50000<	**54**	10<	50<
2-Chlorophenol	**26000**	**44000**	44000	**45000**	8000<	**37000**	**160000**	10<	10<	50<
2-Nitrochlorobenzene	**56000**	**76000**	70000	**270000**	**26000**	10000<	60000<	10<	10<	50<
3-Chloroaniline	**14000**	**18000**	20000<	25000<	**28000**	10000<	50000<	**10**	10<	50<
3-Methylphenol/4-Methylphenol (m&p-Cresol)	4000<	10000<	20000<	25000<	8000<	**35000**	**110000**	10<	10<	50<
3-Nitrochlorobenzene	**110000**	**340000**	340000	**50000**	**130000**	10000<	50000<	10<	10<	50<
4-Chloroaniline	**16000**	20000<	4000<	50000<	**35000**	**71000**	100000<	20<	20<	100<
4-Chlorophenol	**30000**	**33000**	31000	**37000**	8000<	**34000**	**67000**	**18**	10<	50<
4-Nitrochlorobenzene	**61000**	10000<	20000<	**110000**	8000<	10000<	50000<	10<	10<	50<
Total SVOCs	**436000**	862000	704000	1529000	327500	556000	1520000	136	0	530

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = The compound was not detected above
the corresponding method detection limit.

Dup - Duplicate Analysis

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 2000 - Intermediate Zone, Plant-Wide Data

Sample Designation:	GM-27B	GM-54B	GM-60B
Date Sampled:	5/10/00	5/11/00	5/9/00
Compound Name			
Naphthalene	2000<	10<	10<
Nitrobenzene	2000<	10<	10<
Phenol	**8100**	10<	10<
1,2-Dichlorobenzene	2000<	10<	**15**
1,4-Dichlorobenzene	2000<	10<	**63**
2,4-Dichlorophenol	2000<	10<	10<
2-Chloroaniline	**20000**	**15**	10<
2-Chlorophenol	2000<	10<	**16**
2-Nitrochlorobenzene	2000<	10<	10<
3-Chloroaniline	25000	**87**	10<
3-Methylphenol/4-Methylphenol (m&p-Cresol)	2000<	10<	10<
3-Nitrochlorobenzene	2000<	10<	10<
4-Chloroaniline	**25000**	20<	20<
4-Chlorophenol	2000<	10<	10<
4-Nitrochlorobenzene	2000<	10<	10<
Total SVOCs	78100	102	94

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = The compound was not detected above
the corresponding method detection limit.

Dup - Duplicate Analysis

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

January 2000 - Deep Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / Compound Name	MW-3C 01/27/00	GM-4C 01/26/00	MW-5C 01/28/00	MW-7C 01/25/00	GM-9C 02/01/00	GM-10C 02/02/00	GM-12C 02/02/00	GM-17C 01/31/00	GM-31C 01/28/00
1,3-Dichlorobenzene	10<	10<	10<	100<	10<	**27**	10<	10<	10<
1,4-Dichlorobenzene	**68**	10<	**250**	**2800**	10<	**360**	10<	**29**	10<
2-Chloroaniline	**58**	20<	**25**	200<	20<	40<	10<	**21**	10<
2-Chlorophenol	**24**	10<	10<	100<	10<	20<	10<	10<	10<
4-Chlorophenol	**76**	10<	**12**	100<	10<	**32**	10<	10<	10<
bis(2-Ethylhexyl)phthalate	**12**	**30**	**58**	100<	**10**	20<	10<	10<	**26**
Butylbenzylphthalate	10<	10<	**29**	100<	**18**	**50**	**32**	10<	**10**
Phenol	10<	10<	**84**	100<	10<	20<	10<	10<	10<
Total SVOCs	238	30	458	2800	28	469	32	50	36

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = The compound was not detected above the corresponding method detection limit

Table 3. Groundwater Data Summary - Semivolatile Organic Compounds

May 2000 - Deep Zone, Plant-Wide Data

Sample Designation: / Date Sampled: / Compound Name	GM-19C 5/9/00	GM-27C 5/10/00	GM56C 5/11/00	GM-60C 5/9/00
Aniline	20<	**2800**	2000<	80<
Phenol	10<	200<	1000<	40<
1,2-Dichlorobenzene	10<	200<	1000<	**83**
1,4-Dichlorobenzene	**180**	200<	1000<	**790**
2,4-Dichlorophenol	10<	200<	1000<	40<
2-Chloroaniline	**120**	**620**	**14000**	**140**
2-Chlorophenol	10<	200<	1000<	40<
2-Nitrochlorobenzene	10<	200<	**3800**	40<
3-Chloroaniline	10<	**3200**	1000<	**47**
3-Nitrochlorobenzene	10<	200<	**17000**	40<
4-Chlorophenol	**16**	**300**	1000<	40<
Total SVOCs	**316**	**6920**	**34800**	**1060**

Notes:

All results are reported in micrograms per liter (µg/L).

Detections are highlighted in **bold.**

< = The compound was not detected above
the corresponding method detection limit

Table 4
Site Data Summary Statistics

CHEMICAL NAME	Count	Min	Max	ArithMean	GeoMean	std. Dev	95% CI
Acenaphthylene	108	0	0	0	0	0	0
Acetone	113	0	460	215097	2399	1208760	222868
Anthracene	108	0	1200	7877	584	42812	8074
Aroclor-1016	33	0	0	0	0	0	0
Aroclor-1221	33	0	0	0	0	0	0
Aroclor-1232	33	0	0	0	0	0	0
Aroclor-1242	33	0	5000000	160127	84	870206	296902
Aroclor-1254	33	0	2300000	74746	157	400115	136513
Aroclor-1260	33	0	1900000	61148	151	330440	112741
Benzene	113	0	1200000	60110	712	186482	34383
Benzidine	55	0	0	0	0	0	0
Benzo(a)anthracene	108	0	1900	6480	596	42810	8074
Benzo(a)pyrene	108	0	2200	6482	601	42810	8074
Benzo(b)fluoranthene	108	0	2400	6496	613	42808	8073
Benzo(g,h,i)perylene	108	0	1800	6463	584	42812	8074
Benzo(k)fluoranthene	108	0	730	6459	584	42813	8074
Benzoic acid	55	0	0	0	0	0	0
Benzyl alcohol	55	0	6200	10045	653	59373	15691
bis(2-Chloroethoxy)methane	108	0	0	0	0	0	0
bis(2-Chloroethyl)ether	108	0	0	0	0	0	0
bis(2-Chloroisopropyl)ether	55	0	0	0	0	0	0
bis(2-Ethylhexyl)phthalate	108	0	1800	6478	605	42810	8074
Bromobenzene	55	0	0	0	0	0	0
Bromochloromethane	55	0	0	0	0	0	0
Bromodichloromethane	113	0	0	0	0	0	0
Bromoform	113	0	0	0	0	0	0
Bromomethane	55	0	0	0	0	0	0
Bromomethane (Methyl bromide)	58	0	0	0	0	0	0
Butylbenzylphthalate	108	0	2500	6470	581	42812	8074
Carbazole	53	0	0	0	0	0	0
Carbon disulfide	58	0	16	15868	565	67034	17252
Carbon tetrachloride	113	0	0	0	0	0	0
Chlorobenzene	113	0	30000000	749230	1709	3633868	670004
Chlorodibromomethane	55	0	0	0	0	0	0
Chloroethane	113	0	0	0	0	0	0
Chloroform	113	0	240	21334	297	118244	21802
Chloromethane	113	0	0	0	0	0	0
Chrysene	108	0	2100	6469	588	42811	8074
Cis/Trans-1,2-Dichloroethene	58	0	0	0	0	0	0
cis-1,2-Dichloroethene	55	0	0	0	0	0	0
cis-1,3-Dichloropropene	58	0	0	0	0	0	0
Dibenzo(a,h)anthracene	108	0	540	6451	573	42814	8075
Dibenzofuran	108	0	0	0	0	0	0
Dibromochloromethane	58	0	0	0	0	0	0
Dibromomethane	55	0	0	0	0	0	0
Dichlorodifluoromethane	55	0	0	0	0	0	0
Diethylphthalate	108	0	0	0	0	0	0
Dimethylphthalate	108	0	0	0	0	0	0
Di-n-butylphthalate	108	0	0	0	0	0	0
Di-n-octylphthalate	108	0	3900	6483	562	42811	8074
Ethylbenzene	113	0	3300000	43032	358	313388	57782
Fluoranthene	108	0	2800	6515	623	42806	8073
Fluorene	108	0	560	6451	572	42814	8075
Hexachlorobenzene	108	0	1100	6467	593	42812	8074

Table 4
Site Data Summary Statistics

CHEMICAL NAME	Count	Min	Max	ArithMean	GeoMean	*std. Dev*	95% CI
Hexachlorobutadiene	163	0	260	13416	341	96798	14860
Hexachlorocyclopentadiene	108	0	0	0	0	0	0
Hexachloroethane	108	0	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	108	0	2200	6464	579	42812	8074
Isophorone	108	0	0	0	0	0	0
Isopropylbenzene	55	0	29	27097	155	155531	41104
m&p-Xylene	55	0	15000000	279685	176	2021751	534311
Methylene chloride (Dichloromethane)	113	0	350	21334	294	118244	21802
Naphthalene	163	0	6900	13464	340	96793	14859
n-Butylbenzene	55	0	0	0	0	0	0
Nitrobenzene	108	0	0	0	0	0	0
N-Nitrosodimethylamine	55	0	0	0	0	0	0
n-Nitrosodi-n-propylamine	55	0	0	0	0	0	0
N-Nitroso-di-n-propylamine	53	0	0	0	0	0	0
N-Nitrosodiphenylamine/Diphenylamine	108	0	0	0	0	0	0
n-Propylbenzene	55	0	0	0	0	0	0
o-Xylene	55	0	38000000	697993	191	5122989	1353909
Pentachlorophenol	108	0	1900000	65579	4536	315050	59418
Phenanthrene	108	0	4700	6512	607	42807	8073
Phenol	108	0	1700	6490	612	42809	8074
p-Isopropyltoluene	55	0	0	0	0	0	0
Pyrene	108	0	3800	6515	616	42806	8073
sec-Butylbenzene	55	0	0	0	0	0	0
Styrene	113	0	0	0	0	0	0
tert-Butylbenzene	55	0	980	27109	152	155529	41103
Tetrachloroethene	113	0	830	21341	309	118243	21801
Toluene	113	0	220000	23864	327	119646	22060
trans-1,2-Dichloroethene	55	0	0	0	0	0	0
trans-1,3-Dichloropropene	58	0	0	0	0	0	0
Trichloroethene	113	0	4.4	21333	293	118244	21802
Trichlorofluoromethane	55	0	1600000	0	0	0	0
Vinyl chloride	113	0	0	42106	#NUM!	231960	42768
Xylenes, Total	58	0	1600000	110506	2143	323533	83263

WGK Closure Samples - Dioxin/Furan Data

Compound	Sample ID/Qualifiers																			
	Concentrations in parts per billion (ppb)																			
Dioxins	B-12-6-8		B-26-2-4		B-39-4-6		B-53-3-4		B-53-11-12		B-55-2-4		B-55-6-8		B-58-3-4		B-60-0-2		B-63-4-5	
2,3,7,8-TCDD	0		0.343		0.0179		0		0		0		0.0022		1460	E	0.001	J	0.0175	EMPC
1,2,3,7,8-PeCDD	0		1.29		0.0448	J	0		0		0		0.0117		1170	E	0.004	J	0.0199	
1,2,3,4,7,8-HxCDD	0		2.2		0.0527		0		0		0		0.0158		144		0.0029	J	0.0392	Q
1,2,3,6,7,8-HxCDD	0.0256	J	8.21		0.195		0		0		0		0.0468		342		0.0116		0.131	Q
1,2,3,7,8,9-HxCDD	0		4.79		0.121		0		0		0		0.0471		187		0.0092		0.0757	Q
1,2,3,4,6,7,8-HpCDD	0.893		152.26	E	4.59		0		0		42.3	J	1.38		3700	E	0.171		2.85	E
1,2,3,4,6,7,8,9-OCDD	7.33		613.22	E	38.47		0		0		434		12.39	E	36660	E	1.66		30.98	E
Furans																				
2,3,7,8-TCDF	0		141.09	E	0.056		45.7		0		0		0.0561		54.6		0.892	E	1.51	E
1,2,3,7,8-PeCDF	0		7.89		0.0164	EMPC, J	63.2		0		0		0.025		38.3		0.0725	EMPC, X	0.301	
2,3,4,7,8-PeCDF	0		39.5	E	0.0268	J	0		0		0		0.0255		30.2		0.18		1.89	Q
1,2,3,4,7,8-HxCDF	0.0276	J	52.12	E	0.154		6800	E	0		53.1		0.102		188		0.2		14.16	Q, E
1,2,3,6,7,8-HxCDF	0.0127	J	10.15		0.0446	J	2870	E	0		24.1		0.0431		87.8		0.0428		0.596	
2,3,4,6,7,8-HxCDF	0.0135	J	11.69		0.0514		0		0		12.6	J	0.0413		30.2		0.035		0.93	Q
1,2,3,7,8,9-HxCDF	0		1.01	PR	0		0		0		0		0.0055		0		0.0055		0.0215	Q
1,2,3,4,6,7,8-HpCDF	0.74		26.79	E	2.62		7970	E	0		91.2		1.65		1540	E	0.0976		2.04	E
1,2,3,4,7,8,9-HpCDF	0.0727		13.07		0.232		12880	E	0		81.6		0.25		131		0.0638		0.608	
1,2,3,4,6,7,8,9-OCDF	5.83		43.85	E	19.18		44700	E	0		764		7.91	E	8600	E	0.23		5.64	E

Compound Abbreviations:

TCDD—tetrachlorodibenzodioxin	TCDF—tetrachlorodibenzofuran
PeCDD—pentachlorodibenzodioxin	PeCDF—pentachlorodibenzofuran
HxCDD—hexachlorodibenzodioxin	HxCDF—hexachlorodibenzofuran
HpCDD—heptachlorodibenzodioxin	HpCDF—heptachlorodibenzofuran
OCDD—octachlorodibenzodioxin	OCDF—ocatchlorodibenzofuran

J—Estimated value—concentration to standard ratio below calibration curve.
EMPC—Estimated Maximum Possible Concentration. Low ion abundance precludes quantification, value is maximum possible.
E—Estimated value—concentration to standard ratio above calibration curve.
PR—Poor peak resolution, value may be biased high.
Q-Presence of QC ion instabilities caused by quantitative interferences.
X - A PCDF peak has eluted at the same time as the associated diphenyl ether peak

Table 5
IEPA Soil Data Summary

Compound	X101	X102	X103	X104	X105	X106	X107	X108	X109	X110	X111	X112	X113	X114	X115
Benzene	2.5	2.5	3	6	220000	14	890	2.5	2,000,000	4	96	2.5	2.5	2.5	3
Toluene	5	6	5	2.5	1700	4	8	190	150	2.5	16000	4	4	4	4
Chlorobenzene	2.5	1100	2.5	420	130	1300	94	760	5200	2.5	28000	2.5	2.5	2.5	2.5
tert-Butylbenzene	2.5	24	2.5	2.5	64000	1500	2.5	2.5	2.5	2.5	49	2.5	2.5	2.5	2.5
2-Chlorotoluene	2.5	5	2.5	2.5	2.5	2.5	2.5	30000	2.5	2.5	21000	2.5	2.5	2.5	2.5
4-Chlorotoluene	2.5	5	2.5	2.5	2.5	2.5	2.5	13000	2.5	2.5	11000	2.5	2.5	2.5	2.5
1,2-Dichlorobenzene	2.5	850000	2.5	90	140	19	2.5	56	26000	2.5	1100	2.5	2.5	2.5	2.5
1,3-Dichlorobenzene	2.5	16000	2.5	160	2.5	2.5	2.5	2.5	1100	2.5	800	2.5	2.5	2.5	2.5
1,4-Dichlorobenzene	2.5	290000	2.5	650	17	10	6	44	76000	2.5	11000	2.5	2.5	2.5	2.5
1,2,3-Trichlorobenzene	2.5	17000	2.5	11	2.5	2.5	2.5	5	410	2.5	2.5	2.5	2.5	2.5	2.5
1,2,4-Trichlorobenzene	2.5	53000	2.5	140	2.5	2.5	15	16	5200	2.5	8	2.5	2.5	2.5	2.5
Nitrobenzene	2.5	34	2.5	2.5	2.5	2.5	300	2.5	280	2.5	2.5	2.5	2.5	2.5	2.5
Pentachlorophenol	2.5	700	2.5	2.5	2.5	2.5	3800	46000	11000	200	2.5	2.5	2.5	2.5	2.5
2,4-Dichlorphenol	2.5	54	2.5	2.5	2.5	2.5	130	1600	2.5	200	2.5	2.5	2.5	2.5	2.5
2,4,6-Trichlorophenol	2.5	47	2.5	2.5	2.5	2.5	1200	16000	500	2.5	2.5	2.5	2.5	2.5	2.5
4-Chloroaniline	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	84000	250	5600	68	2.5	2.5	2.5

	Min	Max	ArithMean	GeoMean	95% CI	StdDev
Benzene	3	2000000	148069	31	260845	515443
Toluene	4	16000	1206	18	2083	4116
Chlorobenzene	94	28000	2468	60	3638	7188
tert-Butylbenzene	24	64000	4373	11	8350	16500
2-Chlorotoluene	5	30000	3402	9	4621	9131
4-Chlorotoluene	5	13000	1602	8	2145	4238
1,2-Dichlorobenzene	19	850000	58495	38	110860	219065
1,3-Dichlorobenzene	160	16000	1206	13	2078	4106
1,4-Dichlorobenzene	6	290000	25183	44	38370	75822
1,2,3-Trichlorobenzene	5	17000	1164	7	2218	4382
1,2,4-Trichlorobenzene	8	53000	3893	15	6908	13650
Nitrobenzene	34	300	43	6	51	101
Pentachlorophenol	200	46000	4115	27	6046	11946
2,4-Dichlorphenol	54	1600	134	8	207	410
2,4,6-Trichlorophenol	47	16000	1185	12	2081	4111
4-Chloroaniline	68	84000	5996	14	10944	21627

Note: All non-detect values were arbitrarily set at 2.5 ug/kg.